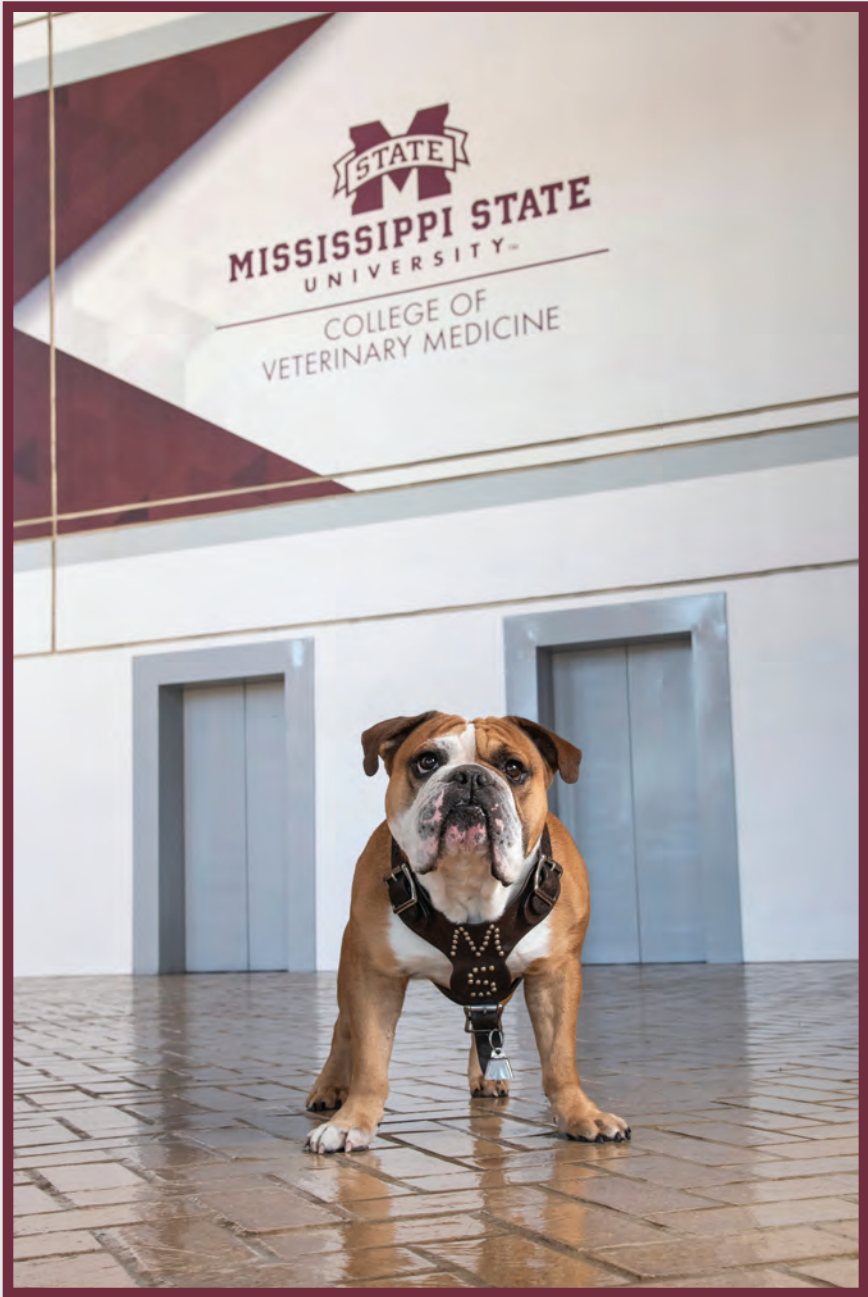




MISSISSIPPI STATE UNIVERSITY™
COLLEGE OF VETERINARY MEDICINE

AVMA COE Accreditation Self Study 2021





MISSISSIPPI STATE UNIVERSITYTM
COLLEGE OF VETERINARY MEDICINE

**AVMA COE Accreditation
Self Study 2021**

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GLOSSARY OF ACRONYMS

ACR	Advanced Clinical Rotation
AERC	Animal Emergency and Referral Center, Flowood, MS. (Jackson suburb)
AHC	Animal Health Center (veterinary teaching hospital located on Starkville campus)
CC	Clinical Competency
CEHS	Center for Environmental Health Sciences
CPC	Clinicopathologic Conference (Year-4 capstone experience/required course)
CPE	Clinical Proficiency Exam
CTL	Center for Teaching and Learning (MSU)
CVS	Community Veterinary Services (Year-3 required rotation)
CVTEA	Committee on Veterinary Technician Education and Activities
DOPS	Directly Observed Procedural Skills
ECPs	Enhanced Clinical Practicums
DAFVM	Division of Agriculture, Forestry and Veterinary Medicine
FAO	Food and Agriculture Organization of the United Nations
FIL	Fish Innovation Lab - USAID Feed the Future Innovation Lab for Fish
FTE	Full Time Equivalent
GCAFS	Global Center for Aquatic Food Security (MSU)
IHL	Institutions of Higher Learning (Governing body for public universities in Mississippi)
IMMS	Institute for Marine Mammal Studies
LARAC	Laboratory Animal Resources and Care
MAFES	Mississippi Agriculture and Forestry Experiment Station
MCQ	Multiple Choice Question
MDL	Multidisciplinary Laboratory
Mini-CEX	Mini Clinical Evaluation Exercise
MSU	Mississippi State University
MVRDL	Mississippi Veterinary Research and Diagnostic Laboratory System
ORC	Office for Regulatory Compliance and Safety (MSU)
ORED	Office of Research and Economic Development (MSU)
OSCE	Observed Structured Clinical Examination
PRDL	Poultry Research and Diagnostic Laboratory
PTAP	Peer Tutoring and Assistance Program
SRE	Summer Research Experience
UN FAO	United Nations Food and Agriculture Organization
URM	Unrepresented minorities
VIRMP	Veterinary Internship and Residency Matching Program
VOICE	Veterinary Students as One in Culture and Ethnicity
VMTP	Veterinary Medical Technology Program
VSC	Veterinary Specialty Center, Stark Road, Starkville, MS



EXECUTIVE SUMMARY





EXECUTIVE SUMMARY

Kent H. Hoblet DVM, MS, DACVPM | *Dean, College of Veterinary Medicine*

The goals of the Mississippi State University (MSU) College of Veterinary Medicine (CVM) are: (1) fostering teaching and learning; (2) promoting research and creativity; (3) expanding outreach and engagement; (4) encouraging globalization; (5) enhancing institutional diversity, culture, and environment; and (6) maintaining a stable financial base. Specific priorities for each goal are listed in the MSU CVM strategic plan (Strategy for Excellence: 2020-2026) [MSU CVM Strategic Plan \(msstate.edu\)](https://www.msstate.edu/cvm/strategy-for-excellence).

Standard 1. Organization: The College has experienced growth in multiple areas since the last COE site visit in 2014 (Appendix, Executive Summary - Table A). The administrative team is experienced and supportive of the College's mission. The MSU CVM Dean's Office, Office of Academic Affairs, Office of Research and Graduate Studies, the Animal Health Center Office, and all departmental offices are sufficiently staffed to manage the College's business. The CVM dean reports to the MSU Provost and Executive Vice President (Dr. David Shaw), and the Vice President for the Division of Agriculture, Forestry, and Veterinary Medicine (Dr. Keith Coble), both of whom report directly to the University president. The College's funding model and university structure encourage entrepreneurial endeavors and leveraging of state resources. Mississippi State University has received the "Great College to Work For" designation from The Chronicle of Higher Education for each of the past five years.

Standard 2. Finances: Under the Board of the Mississippi Institutions of Higher Learning (IHL), the CVM is a separately funded unit, i.e., the legislature passes, and the governor signs a separate, unique appropriation bill each year for the College. Since 2014, the College's overall expenditures and revenue have increased substantially (e.g., revenue from \$49 M to \$64 M). The increase in self-generated revenue streams (teaching hospital, diagnostic laboratory, extramural research funding, gifts, and endowment) has reduced dependence on state allocations and improved the College's financial stability.

Standard 3. Physical Facilities and Equipment: The College's facilities have grown and improved since our last site visit, with most of the changes focused on enhancing the students' learning environment. Two additional classrooms were constructed in 2015 (\$3.8M state-funded bonds) and major upgrades in technology have been completed in all the College's classrooms, rounds rooms, and other teaching spaces. The anatomy laboratory was renovated, the student surgical suite was remodeled and improved, the small animal intensive care facility was expanded (twice), a space (in a separate building) was repurposed to create a spay/neuter facility for the shelter medicine program, and many other areas of our teaching hospital have been remodeled. Currently, a 14,000 sq. ft. expansion of the Animal Emergency and Referral Center (AERC) is underway which includes additional on-site student housing and a rounds room (completion originally scheduled for summer 2022; revised to January 2023).

Standard 4. Clinical Resources: The trends in clinical caseload continue to increase and are more than adequate to support the teaching program. Students' clinical training consists of two full years of "hands-on" mentored clinical instruction, including eight core rotations in Year-3 (39 weeks) and six core rotations in Year-4 (19 weeks), externship opportunities, elective rotations, and Enhanced Clinical Practicums (ECPs- currently in pilot stage). To support student learning, the College maintains teaching herds of horses, calves, and small ruminants. The Veterinary Specialty Center (VSC) provides access to a 3T MRI, Varian® linear accelerator for radiation therapy, and 4-D ultrasound. The AERC, located in Flowood, Mississippi provides students with learning opportunities in a busy, urban emergency clinic setting. The College also partners with the Institute for Marine Mammal Studies (IMMS) in Gulfport, Mississippi, and has two CVM faculty members located at the facility.

Standard 5. Information resources: The CVM librarian works closely with the MSU library to provide resources needed to support the education and research missions of the College. Students can readily access most materials in electronic format regardless of their location. The CVM information technology team is sufficiently staffed and provides support for the electronic medical records system (VetView®), all classroom technology, and student, faculty, and staff computers.



Standard 6. Students: MSU CVM has an academically strong student body with diverse interests, backgrounds, and experiences. An entering class typically includes students from approximately 20 states. The entering class size was increased from 95 to 112 students per class beginning in June 2021. The College continues its efforts to increase scholarships (the total amount of scholarships awarded grew from \$680,029 per year in 2017-2018 to \$1,088,460 in 2020-2021) and to recruit the most qualified and diverse students.

Standard 7. Admissions: The size of our overall applicant pool has increased since the last site visit, and the quality of the applicants remains high. Dr. Brittany Moore-Henderson became director of admissions in 2018 and reports directly to the dean. In 2019, the College hired a new admissions manager and a new admissions coordinator, both of whom have significant experience with admissions and associated advising. The admissions committee has 14 members, all of whom are full time faculty. Recruitment is supported by a team of 10 faculty members with a passion for veterinary medical education and veterinary students and who liaise with students and veterinary associations/faculty advisors in specific geographic regions and at specific colleges and universities. This team, together with the admissions committee regularly evaluates our recruitment and admissions processes to further increase the breadth and diversity of the applicant pool.

Standard 8. Faculty: MSU CVM has a dedicated, productive, collegial faculty with a strong record of curricular development and delivery. The faculty is of sufficient numbers and expertise to support the teaching, service, and research missions of the College.

Standard 9. Curriculum: MSU CVM has a two-phase curriculum that provides students with strong core classes, extensive casework and clinical experiences, and the flexibility to choose a career path that meets individual student preferences. The program produces excellent graduates who are successful on the NAVLE (average 98% pass rate over the past five years), in high-demand for positions after graduation (above the national average salaries in five of the past six years), and successfully compete for internship and residency positions (fifth among all North American colleges over the past nine years in the percentage of applicants matching in the VIRMP – 72%). The curriculum is managed by the CVM curriculum committee (comprised of faculty members from all academic departments of the College plus three student representatives) with oversight by the administration. A comprehensive holistic review of the curriculum was completed in 2018 and has resulted in the implementation of many positive changes. Every MSU CVM student completes two full years of “hands-on” mentored clinical instruction that begins in May after they finish their second year of preclinical studies and includes core clinical rotations in our teaching hospital and clinics, externships, and elective courses. Enhanced clinical practicums are elective at the present time but will be required core rotations for the class of 2025 (beginning with academic year 2023-2024).

Standard 10. Research Programs: The MSU CVM research program has grown substantially, with an active extramural grant portfolio totaling more than \$46 M (compared to \$11,000,000 in 2014). The College continues to provide opportunities for all students that desire to participate in research programs. Students have numerous opportunities to learn about and participate in basic or applied research: through the MSU CVM Summer Research Experience; the combined DVM-PhD degree program; the research experience course (CVM 5840, Veterinary Student Research Initiative: 2-6 credit hours) for which the College provides up to \$1,500 to support each student’s research; the College’s study abroad programs in Uganda and with FAO; and participation in projects in Zambia with the CVM-led USAID Fish Innovation Laboratory.

Standard 11. Outcomes Assessment: The College utilizes numerous outcomes measures to ensure we are meeting our goals and, after analysis by various taskforces, the College’s curriculum committee, and the administration, to drive curricular change. Proven processes are in place to observe and assess students both formatively and summatively to assure accuracy of assessment of the nine clinical competencies. Processes are also in place and have been used successfully to remediate those students who do not initially demonstrate competency.



Challenges

Standard 1. Organization: Mississippi's small population base (2.98 million), limited state resources, and historic reputation combine to make it challenging to attract and retain faculty. The College has also been challenged to attract students, staff, and faculty members who reflect the diversity of society so that teaching, research, and service activities can meet the needs of a diverse society. The College continues its efforts to increase diversity among its administration, faculty, staff, and students. All members of the admissions committee and recruitment team have completed diversity training (Purdue Veterinary Diversity Certification Program), and the College's Diversity and Inclusion committee reviews CVM policies and makes recommendations for improvement. The College also promotes and encourages leadership training for faculty and staff from underrepresented populations, as well as pays the registration costs for members of the admissions committee, diversity and inclusion committee, and recruiting team to attend the Diversity Matters Symposium.

Standard 4. Clinical Resources: Due to changes in agriculture that have occurred in the Starkville area, as well as the seasonality inherent in bovine and equine practice, the on-farm ambulatory caseload of large animal practice has become more variable and has the potential to negatively impact the students' learning experience. Measures are being taken to proactively address this situation and include a reduction in our ambulatory service fees and efforts to improve client service. The College also now maintains several teaching herds used for student learning (horses, calves, small ruminants). In 2020, enhanced clinical practicums (ECPs) were introduced to further augment clinical teaching that occurs in the teaching hospital and ambulatory clinic, particularly that of farm animals, and the initial focus of the ECPs is the recruitment of mixed and large animal general practices to provide valuable learning experiences and introduce students to rural practice.

College's Response to the COVID-19 Pandemic: As a result of the COVID-19 pandemic, adjustments were made in the delivery of the curriculum in the spring of 2020. Beginning on Monday, March 23, 2020, all didactic courses (Phase 1) were converted to an "online" format for the final four weeks of the semester. The laboratory components of spring classes were nearly completed by this time, so even with the change of format the course objectives were adequately met. At the beginning of the pandemic, clinical rotations (Phase 2) continued and students were "platooned" on the various services to reduce the number present at any one time. All CDC recommended safety and hygiene precautions were implemented (including temperature monitoring, social distancing, frequent hand washing and use of hand sanitizer, facial covering, curb service for clients and patients, etc.).

Beginning March 27, the state of Mississippi imposed a "safer-at-home" order. Didactic courses continued in the "online" format for the remainder of the semester, which ended April 24, 2021. At this point, clinical rotations were altered so students were relieved of their clinical responsibilities but continued to participate in daily "online" clinical rounds, topic rounds, and case discussions. Some student volunteers were permitted to participate in patient care in the Animal Health Center, and all CDC-recommended safety measures were employed.

Beginning June 1, 2020, Phase 2 students returned to their clinical rotations, and all CDC-recommended safety measures were continued. Because every MSU CVM student completes two full years of "hands-on" clinical instruction that begins in May after they finish their second year of preclinical studies, students have many opportunities to obtain the hands-on experience missed because of the COVID-19 pandemic. They rotate through eight core rotations in Year-3 (39 weeks) and six core rotations in Year-4 (19 weeks). Students also take up to six weeks of elective credits in Year 3 and have a minimum of 27 elective credits in Year 4. Students participate in up to 12 weeks of externships, one or more of the 20 elective courses offered during Year 4, and can return to a specific rotation for an advanced clinical rotation to achieve required clinical competencies.



STANDARD 1: ORGANIZATION

STANDARD 1: ORGANIZATION





STANDARD 1. ORGANIZATION

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

Our mission is to protect and improve the health and well-being of animals and humans while contributing to the economic development of Mississippi and surrounding regions by providing quality professional veterinary education, advancing research in veterinary and biomedical fields, and serving the community through excellent diagnostics, clinical care, and shared learning.

Vision: The MSU College of Veterinary Medicine will be recognized widely for producing and placing highly capable veterinarians, veterinary technologists, and scientists, and our faculty and staff will be recognized for being at the forefront of new developments in animal and human health. The College will continue to maintain a flexible, two-phase curriculum, with two years of mentored clinical experience that is responsive to the changing needs of veterinary medical (DVM curriculum) students, the veterinary profession, and the College's clientele. The College is committed to a teaching and clinical instruction program that results in veterinary medical graduates possessing the scientific knowledge, skills, and values necessary to practice entry-level veterinary medicine in a wide range of domestic species, including food animals, equine, and companion animals in a variety of environments. The College is committed to excellence and continued improvement in the delivery of programs in teaching, research, and service (clinical service, diagnostic service, and outreach). The College's "Strategy for Excellence 2020-2026" states six major goals in addition to factors for success and challenges facing the College. [MSU CVM Strategic Plan \(msstate.edu\)](https://msstate.edu)

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

Mississippi State University is fully accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) with the next reaffirmation scheduled to occur in 2024.

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

The MSU organizational chart is provided in Appendix Standard 1. The CVM is a college in the Division of Agriculture, Forestry and Veterinary Medicine (DAFVM) and reports on budgetary and most research matters to the Vice President, DAFVM, and on tenure issues, student issues, and some research matters to the Provost/Executive Vice President.

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

The CVM organizational chart is provided in Appendix Standard 1.

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.

The dean is the chief executive officer. The dean is advised in this role by the MSU CVM Cabinet, whose 13 regular members meet three Thursday mornings each month. The Dean's Council is comprised of 20 members (alumni, practitioners, and friends of the college) who meet twice each year to consider College issues. The first Thursday of each month, the dean meets with an "Extended Cabinet" consisting of 20 faculty (including regular cabinet members) and 16 staff members who hold CVM unit leadership positions. The purpose of MSU CVM Extended Cabinet is for staff and administrative faculty to share information on College issues, as well as relay information back to faculty and staff.

Departmental faculty meetings are held the third Thursday of each month and all-college faculty meetings are held the fourth Thursday of each month. These meetings, and the MSU CVM Faculty Organization (FO) meeting described below, facilitate discussions among faculty and, for at least two days a month, between cabinet members and non-administrative faculty.

The FO is comprised of all non-administrative tenure and clinical track faculty members and meets monthly to discuss matters of interest to the faculty. This forum encourages open and thoughtful discussion. Ideas from the FO are then brought by the chairperson (who is a member of cabinet) to the MSU CVM Cabinet for discussion or clarification.



The MSU CVM Assistant Dean for Clinical Services and Animal Health Center Director [Dr. Gary (Joey) Burt] meets monthly with staff in each service area and leads monthly Service Chief Meetings. The Animal Health Center Board is led by the associate dean for administration and includes the assistant dean for clinical services, clinical department heads, the small animal chief of staff, the large animal chief of staff, and representatives from the clinical faculty and hospital staff.

Students may comment on College activities in the annual Student Satisfaction Survey and through a “suggestion box” located at the entrance to the cafeteria that permits anonymous comment submission. Anonymous comments and suggestions can also be submitted on-line from the CVM website. [Accreditation | Vet Med \(msstate.edu\)](#)

The dean meets at least once during the fall and spring semesters with Year-1 and Year-2 classes (“signals check”) and is personally involved in the exit interviews with graduating seniors. The MSU CVM Associate Dean for Academic Affairs meets regularly with class officers, as well as, on an as-needed basis with class officers and any student requesting a meeting.

College committees and their membership and appointment authority are listed in Appendix Standard 1.

Under the direction of the dean, ad hoc task forces are established to study, analyze, and recommend potential changes in academic and business operational procedures. Faculty (and staff where applicable) are appointed to each task force. Since the last site visit, the following task forces provided reports and recommendations regarding College activities: (1) curriculum visioning task force, (2) curriculum implementation task force, (3) admissions and recruitment task force, (4) COVID-19 response task force, (5) teaching laboratory support task force, (6) student debt task force, (7) Title IX task force, and (8) island clinical training funds task force.

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

No changes are planned.

12.1.7. Provide documentation of policies and activities that demonstrate that diversity is an important part of the academic culture, as consistent with applicable law.

MSU CVM values and promotes diversity and inclusion in all programs and activities. The college’s strategic plan ([MSU CVM Strategic Plan \(msstate.edu\)](#)) states that “the College will promote an inclusive institutional culture that fosters diversity within the student body, faculty and staff” and will “create an academic environment that enhances inclusiveness for all people regardless of race, religion, ethnicity, age, gender, gender identity, sexual orientation, cultural and socioeconomic background, national origin, and disability.” The College complies with all MSU Office of Institutional Diversity and Inclusion, MSU Office of Compliance and Integrity, Title IX, and sexual misconduct regulations and adheres to all MSU policies, including:

3.02 Statement on Equal Opportunity and Nondiscrimination
([OP 03.02: STATEMENT ON EQUAL OPPORTUNITY \(msstate.edu\)](#))

3.03 Discrimination, Harassment and Retaliation
([Discrimination, Harassment, and Retaliation | OCI \(msstate.edu\)](#))

3.04 Sexual Misconduct
([Sexual Misconduct | Policies \(msstate.edu\)](#))

91.122 Students with Disabilities
([OP 91.122 Students with Disabilities \(msstate.edu\)](#))

The MSU CVM Diversity and Inclusion Committee is comprised of faculty from each academic department, staff, and students dedicated to facilitating diversity and inclusion in all aspects of CVM life. [Diversity at MSU CVM | Vet Med \(msstate.edu\)](#) Among their many activities, this group:

- Enrolls its members (along with members of the admissions committee and recruitment team) in the Purdue Diversity Certificate Program.
- Provides training to faculty, staff, and students on diversity and inclusion topics, including implicit bias, microaggressions, etc. In September 2020, the College provided funds for five faculty members and five



- students to attend the Diversity Matters Symposium.
- Developed a college diversity statement and contributed to creation of the MSU CVM Strategic Plan.
 - Schedules recruiting trips to historically black colleges and universities (HBCUs) and MANRRS (Minorities in Agriculture, Natural Resources, and Related Sciences).
 - Makes policy recommendations to MSU CVM Dean’s Cabinet on issues related to diversity and inclusion (i.e., in 2020-2021 revision of the CVM’s dress code to make it more gender-inclusive).
 - Promotes the “This is How We Role Program” ([This Is How We “Role”: Inspiring future researchers through veterinary medicine | Science Education Partnership Award \(nihsepa.org\)](#))
 - Collaborates with Tougaloo College (Mississippi HBCU) and two universities in Puerto Rico to streamline the admission process for underrepresented students that meet GPA and other requirements (seats are reserved for qualified students in the class).

Other College programs that support an institutional culture of access, diversity and inclusion are as follows:

- VOICE (Veterinarians as One Inclusive Community for Empowerment) and PrideVMC (Pride Veterinary Medical Community) groups at CVM conduct elementary school visits, support the Starkville PRIDE Parade, visit Boys and Girls Clubs, host lectures on topics related to access, diversity and inclusion, host an annual Melting Pot Potluck, and support suicide prevention training. ([Clubs and Organizations | Vet Med \(msstate.edu\)](#))
- The College encourages Safe Zone Ally certification (available on MSU campus).
- VetAspire ([VetAspire Program | Vet Med \(msstate.edu\)](#))
- Vet camp ([Summer Veterinary Camp | Vet Med \(msstate.edu\)](#))
- International Veterinary Students Association ([Clubs and Organizations | Vet Med \(msstate.edu\)](#))
- Study abroad program in Uganda ([International Programs | Vet Med \(msstate.edu\)](#))
- Study abroad program with the FAO and USAID Fish Innovation Lab (Zambia and other sites). ([Study Abroad Programs | Vet Med \(msstate.edu\)](#))
- Student international travel support ([International Travel Funding | Vet Med \(msstate.edu\)](#))
- Leadership training opportunities for women and faculty and staff in underrepresented populations.

Admissions and Recruitment: Members of both the admissions committee and recruitment team receive training on diversity, implicit bias, and other related topics. During the admissions process, consideration is given to first generation college students (36% (42) of the class of 2025 are first-generation college students). The recruitment team recruits at state and regional HBCUs.

Orientation: During orientation of incoming students, a compliance specialist from the MSU Office of Compliance and Integrity presents information on Title IX and sexual harassment regulations. The onboarding process for new faculty, staff, and house officers includes a requirement that all new employees undergo SHARP training (Sexual Harassment Awareness, Response, and Prevention). Orientation for new house officers also includes a presentation by the MSU CVM Assistant Dean for Clinical Services on Title IX and importance of diversity and inclusion.

Veterinary Curriculum: One-hour lectures on “Cultural Competence in Veterinary Medicine” and “Diversity, Inclusion and Implicit Bias” are presented in the Professional Development II course.

CVM is committed to creating a diverse and inclusive academic culture. In 2018, Dr. Brittany Moore-Henderson (MSU CVM Director of Admissions) received the MSU Division of Agriculture, Forestry, and Veterinary Medicine Diversity Award for her work in support of diversity and inclusion at CVM. She currently serves on the board of the Golden Triangle Boys and Girls Club.

The Office of the MSU vice president for access, diversity, and inclusion, which oversees the Holmes Cultural Diversity Center on campus and the MSU Office of Institutional Diversity and Inclusion, is a valuable resource for the College and provides training for faculty, staff, and students. In February 2021, Vice President Ra’Sheda Bodie-Forbes met with the MSU CVM Dean, Director of Admissions, and Chair of the CVM Diversity and Inclusion Committee to discuss the College’s plan for increasing diversity among its students, staff, and faculty.







STANDARD 2. FINANCES

Overview: The College has experienced financial growth in most areas since the last accreditation site visit. Principal budget revenue streams (reported in Appendix Standard 2, Table B) include:

- General state appropriation – as a separately-budgeted unit (the legislature passes and governor signs a separate budget bill for the CVM), these funds come directly to the College. State appropriations have remained relatively stable - even with the COVID pandemic - during the past five years.
- Tuition from DVM and veterinary technology (VMTP) students (and limited fee-based revenue) – all four years’ tuition for DVM students, and the final two years’ tuition for veterinary technology students, accrues to the College. (The University receives the fee revenue, \$2,191.81/student/year, directed toward support of general campus functions for all students. The University also receives tuition from all graduate students.)
- The College receives an annual allotment of \$86,053 (total) from the provost’s office for partial academic appointments for several faculty members.
- The CVM receives all revenues from all college-owned clinical operations (AHC, VSC, AERC).
- The CVM receives all revenues from the diagnostic laboratories.
- Research grants and contracts – 100% of all direct and most indirect cost recoveries accrue to the College. An exception is the College receives 75% of indirect costs from the USAID Fish Innovation Lab. (This is because of support the MSU Office of Research and Economic Development provided in the development and continuing activities of the lab).
- CVM receives 100% of all endowment and annual scholarship gifts. A 5% administration fee is paid to the MSU Foundation from endowment earnings and from non-scholarship annual gifts.

Other financial arrangements of note:

- Whereas the College does receive all revenues outlined above, the CVM is responsible for all expenses, direct and indirect, including employee benefits, utilities, facility operation and maintenance, and custodial support. The College pays an annual assessment of \$237,492 to the University for shared services such as registrar, landscape services, controller’s office, and police support. In addition, the University pays 2% of the electricity expense for the Wise Center, which represents the space occupied by the University Television Center and public areas of the building used occasionally for conferences and events.
- The College has great autonomy in the management of positions. The tenure track faculty hiring process is completed after approval by the Office of the MSU Provost/Executive Vice President, whereas non-tenure faculty hiring is approved by the vice president of DAFVM. The College is not restricted to “faculty lines” and can create new faculty and staff positions as deemed necessary, subject to availability of funds.
- The Veterinary Specialty Center occupies space in the Premier Health Complex (a human health facility), which is privately owned but leased by MSU ORED. CVM pays rent to the MSU Office of Research inclusive of utilities and building maintenance. (\$10,144/month based on 3,745 sq. ft.)
- The College assesses its financial position through annual comparison with other CVMs (AAVMC Comparative Data Survey), semi-annual collection of performance measure data as directed by the Mississippi Legislature, and annual reviews with the MSU Executive Vice President and Provost, Vice President for DAFVM, and the MSU Vice President for Finance and Administration. Results are communicated to faculty and staff on a regular basis, to include seeking input and feedback for improvement in benchmarks.
- The College’s four-year bachelor’s degree program in Veterinary Medical Technology costs approximately \$425,525 per year (total salaries, fringes, contractual and commodity costs to conduct the program). For FY2021, the CVM received \$483,144 in tuition from the VMTP.

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

See Appendix Standard 2, Tables A, B and C

Trend Analysis of Expenditures by Category (2017-2021)

Instruction, Academic Support, and Student Services: 18.8% growth due to increased salaries for teaching faculty and growth in student support services (counseling, Office of Academic Affairs, etc.).



Research Expenditures: 13% growth, largely driven by NIH COBRE grant (\$10.5M) and a \$15M grant in support of the Feed the Future Innovation Lab from USAID.

Outreach/Continuing Education: Expenditures have been relatively consistent over the past five years.

Teaching Hospital: 10% increase attributed to increased caseload and cost of medical supplies.

Diagnostic Lab and other clinical labs: 37.6% increase attributed to increased caseload, cost of supplies, addition of chronic wasting disease testing in deer, and an accounting change.

Facilities Operations: Facilities operation expenses have decreased 6% over the past five years. The College has improved energy efficiency and realizes significant savings by employing its own knowledgeable and skilled maintenance staff.

Capital Expenditures: Significant increase in the past three years due to renovations to the fourth floor of the Wise Center, the addition of new facilities (shelter medicine facility, clinical skills laboratory, student study lounge, counselor's suite) and remodeling of the student laboratory spaces and learning facilities in the hospital.

Student Aid: Student aid increased significantly due to growth in scholarship funds primarily available from gifts and endowments.

Other expenditures: Other expenditures have been relatively consistent over the past five years.

Trend Analysis of Revenue by Category (2017-2021)

Government appropriation to college: State appropriations have been consistent over the past five years, with small increases provided to cover costs of employees' insurance. State appropriation for FY2021 was decreased due to the COVID-19 pandemic but increased to \$18,154,397 in FY2022.

University appropriation to college: University appropriations have been consistent over the past four years.

Revenue derived from students: Increased 29% over the past 5 years - 89.6% of the increased revenue was due to increased student enrollment and 10.4% was due to tuition increases. During the past five years (FY 2017-2021) the College increased tuition charged to students 3 times. Tuition was raised (\$800 per student) for academic year 2021-2022.

Tuition and fee revenue paid by other entities on the students' behalf: 35% growth due to contracts with West Virginia and South Carolina and from limited number of students from St. George's University (14) and St. Matthews University (13).

Teaching hospital revenue: the 34% increase is attributed to an increased caseload in the AHC, AERC and VSC, the addition or expansion of several clinical services, and an increase in fees charged to clients.

Diagnostic lab and other clinical lab revenue: 69% growth due to an increase in fees and increased caseload.

Extramural grants and contracts: Extramural grants and contracts decreased by 26% in FY2021 compared to FY2017. However, the FY2021 figure does not include new NIH U01 grant (\$3.37M) and GOMESA (Gulf Aquatic Health) grant (\$2.2M). The decreased revenue in FY2021 is attributed to the loss of a key NIH-funded researcher. The increased revenue in FY2019 and FY2020 was due to receiving an NIH COBRE grant (\$10.5M) and USAID Feed the Future Innovation Lab for Fish (\$15M).

Overhead return to the college, department, or faculty member: 16% growth due to increased research productivity and grants that carried greater indirect costs.

Current year gifts and endowment income: Gift and endowment revenue in FY2021 was reduced compared to FY2017 but increased compared to FY2018 - 2020. The true endowment market value is increased compared to FY2017.

Other revenue: Revenue has been consistent over the past five years.



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

Strengths: 6.8% growth in total revenue over the past five years (from the teaching hospital and clinics, diagnostic laboratories, endowment portfolio, research programs, and increased enrollment) has reduced the College's reliance on state-appropriated funds and supported improvements in facilities, staffing, and the professional teaching program.

Weaknesses: Government appropriations have not changed significantly over the past five years. Growth in College programs has been enhanced through self-generated funds.

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 visual presentations would be helpful).

All revenue sources support the professional teaching program; those with the most direct impact include state appropriations, tuition revenue, and revenue from the teaching hospital and diagnostic laboratory. State appropriations have remained relatively consistent over the past five years, while tuition revenue and revenues from the teaching hospital and diagnostic laboratory have increased. The increase in tuition revenue resulted primarily from additional enrollment and secondarily due to increases in tuition over the past five years. Graphs comparing revenue sources in FY2017 and FY2021 are provided in Standard-2 Appendix.

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

Growth in hospital and diagnostic laboratory revenue, state appropriations, tuition revenue, and gift funds and endowment funds has been largely invested in the professional teaching program. These funds are used to purchase hospital supplies necessary for patient care, to support salary increases necessary to retain key teaching faculty and staff, and to hire additional teaching faculty, house officers, and staff. Funds were also used to enhance staffing in the MSU CVM Office of Academic Affairs and increase student support services.

Some of the increases in research funding have provided salary support for faculty teaching in the veterinary curriculum. For example, grants from the National Fish and Wildlife Foundation (NFWF, five-year \$6.6 M) and the Gulf of Mexico Energy Security Act (GOMESA, \$1.2 M in FY 21 and \$2.2 M in FY22) provide funds used to partially support 10 faculty members who also teach in the veterinary curriculum.

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

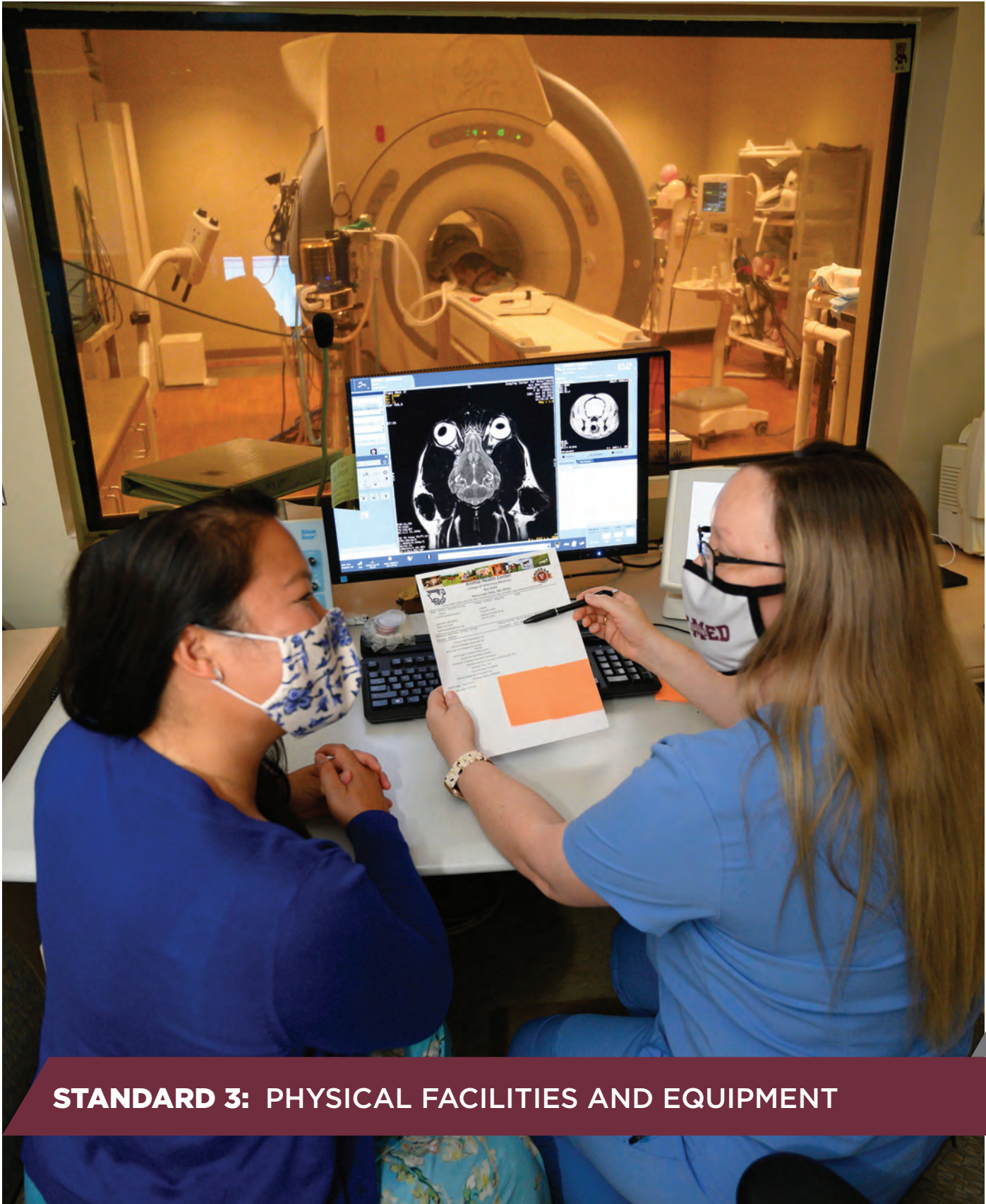
The growth in hospital revenue has funded all increases in operational costs over the past five years. Hospital revenue currently funds supplies and equipment, staff, house officers, and a portion of faculty salaries (based on by their clinical FTE assignment).

12.2.6. Describe anticipated trends in future revenues and expenditures.

Hospital revenue has increased an average of 11% annually over the past five years, and that trend is expected to continue over the next few years, though some increase in expenses is also expected. Growth in diagnostic laboratory revenue is also expected to occur along with a similar increase in expenses. We anticipate relatively modest increases in tuition revenue. When fully implemented (over the next four years), the additional enrollment approved by COE in September 2020 will increase annual tuition revenue by approximately \$3M per year. We anticipate that this increase in tuition revenue will enable us to limit tuition increases despite the need to hire a limited number of additional regular faculty and staff. State appropriation revenue is difficult to anticipate due to its dependence on the state's economic performance. The College continues to strive to reduce dependence on state appropriations by increasing other revenue sources and generating savings by improving energy efficiency, adjusting staffing in non-academic roles, shifting some faculty responsibilities to improve efficiencies and effectiveness of teaching, and utilizing a national purchasing group to lower costs for medical supplies. Examples of recent cost-saving measures and their continuing benefit include:

- Auditing medical gas tanks and using a competitive bidding process is saving \$53,000/year.
- Improved management of unneeded phones lines is saving \$16,000/year.
- Purchase of the Animal Health Center's CT unit saves \$56,000/year over leasing.
- Improved management of hospital supply waste is saving \$88,000/year

These changes alone result in annual continued savings of more than \$200,000.



STANDARD 3: PHYSICAL FACILITIES AND EQUIPMENT

STANDARD 3: PHYSICAL FACILITIES AND EQUIPMENT





STANDARD 3. PHYSICAL FACILITIES AND EQUIPMENT

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 main campus of MSU CVM is located in Starkville adjacent to the 1,100-acre Mississippi Agriculture and Forestry Experiment Station (MAFES), with satellite facilities in Starkville, as well as the Mississippi cities of Flowood and Pearl, both in the Jackson area, and in Stoneville in the Mississippi Delta. The College also has two faculty members with teaching, clinical service, and research responsibilities located at facilities owned by the Institute for Marine Mammal Studies (IMMS) in Gulfport, Mississippi.

Mississippi State University Main Campus: The CVM complex consists of the Wise Center; the Dr. J. Gregg Boring Biomedical Research Building and Annex; research and equine Isolation; Morgan Freeman Equine Reproduction Research Unit; bovine working facility; aquatic medicine hatchery and research facility; shelter medicine surgery facility; “poultry house” (used for housing a variety of animals); BSL-2 research facility; BSL-3 research facility; four Scales research buildings; and the classroom building (9,805 gsf adjoining the Wise Center) that was constructed in 2015.

Constructed originally in 1980 with major renovations to the roof and building envelope in 2010 and the necropsy area in 2013-14, the Wise Center (376,000 gsf) houses the majority of the College’s instructional spaces, consisting of five classrooms with modern technology, including lecture capture systems (Rm 112= 114 standard/4 ADA seats, Rm 113= 134 standard/4 ADA seats, two classrooms each with 104 seats, and one classroom with 95 seats), a student lounge with three study rooms, surgery teaching laboratories, library, administrative and faculty offices, veterinary teaching hospital with large and small animal clinics (Animal Health Center- AHC), cafeteria with dining area, research animal facility, research laboratories, and a 360-seat auditorium. Numerous smaller conference rooms are located throughout the AHC and faculty office areas. An on-site unit of the MVRDL system serves as the diagnostic laboratory for the AHC and for veterinarians in the surrounding area. Year-1 and Year-2 DVM student lectures are held in the classrooms, with gross anatomy and other laboratories taught in a dedicated laboratory space. Year-2 small animal surgery instruction occurs in a dedicated surgery suite with adjacent animal holding areas. All animals used for teaching and research are under approved IACUC protocols. The College’s animal care and use program is AAALAC accredited.

The Dr. J. Gregg Boring Biomedical Research Building (8,645 gsf) was built in 1989 to accommodate translational biomedical research. A modular addition, constructed in 2000, provides an additional 1,736 gsf.

The Morgan Freeman Equine Reproductive Research Unit opened in 2004, following extensive renovations to an existing structure. This 6,700 gsf building houses the equine theriogenology service, some aquatic medicine research support, and a shop for the College’s operations and maintenance department. Immediately adjacent to this facility are support areas including open-air, covered bovine holding pens and open-air, covered equine stalls.

The aquatic medicine hatchery and research facility (4,608 gsf) was constructed in 2000 to raise specific pathogen-free fish for research projects.

The equine isolation unit (3,480 gsf) received major renovations in 2007 and a complete replacement of the heating/ventilation/air conditioning (HVAC) system in 2013. This building houses multistage, isolation preparatory areas such as men’s and women’s locker rooms, anterooms, and hallways, three isolation stalls, and an access hall for cleaning contaminated stalls. A research isolation area is in a separate part of this building.

The C. Edward Couvillion Small Ruminant Research Facility (1,956 gsf) was built in 1993 to house small ruminants but has since been adapted to provide bovine research space and a calf/small ruminant isolation room.

Starkville: The Veterinary Specialty Center (VSC), located in the Premier Health Complex building four miles northwest of the Wise Center, houses the College’s neurology, ophthalmology, and radiation oncology services. The Premier Health Complex is a collaboration between MSU and Premier Radiology Group (human medicine) of Tupelo, Mississippi, and has areas dedicated for veterinary use, human health care, and research (J Vet Med Ed, 41:90-95, 2014). The veterinary space (3,745 gsf) is occupied by VSC and includes examination rooms, offices, diagnostic areas, a reception area, and animal housing space. The



human health care facilities include a cancer care unit, full-service laboratory, urology center, and a walk-in medical clinic. A 3-Tesla MRI, 4-D ultrasound, 64-slice CT, and Varian® Linear Accelerator are available to support patient care and research (both human and veterinary).

Flowood: The Animal Emergency and Referral Center (AERC) is located in the Jackson suburb of Flowood, 122 miles from the CVM. The 5,200 gsf facility enables Year-4 DVM and veterinary medical technology (VMT) students to participate in the fast pace of emergency veterinary procedures in a busy, urban setting. The in-house diagnostic laboratory, digital radiology, and CT scanner are available to support patient care. Students may also participate in several referral services, such as ophthalmology, internal medicine, dentistry, and dermatology, on an intermittent basis. Construction of a 14,000 sq. ft. addition (estimated \$5.5 M) is underway and includes additional clinic space, student housing, and a conference room for teaching. Due to covid-related supply chain issues, projected completion of the addition is February 2023.

Pearl: The Mississippi Veterinary Research and Diagnostic Laboratory (40,822 gsf) was completed in 2006 and is in the Jackson suburb of Pearl (128 miles from CVM, 10 miles from AERC). The MVRDL houses the state's reference (regulatory) veterinary diagnostic laboratory and the Poultry Research and Diagnostic Laboratory. This laboratory has BSL-3 diagnostic workspace, research animal housing, public conference and training facilities, and an on-premises student dormitory (eight students, ADA accessible).

Stoneville: The Aquatic Research and Diagnostic Laboratory, part of the MVRDL system, is located at the Delta Research and Extension Center near Greenville, Mississippi (135 miles west of CVM).

Institute for Marine Mammal Studies: IMMS, a non-profit entity established in 1984 providing public education, conservation, and research on marine animals, is located in Gulfport, Mississippi (252 miles south of CVM). The facility contains a veterinary clinic, dormitory for student housing (currently under construction), teaching spaces, and tanks for housing marine mammals and turtles.

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.

A map of Mississippi showing CVM campuses and an aerial map of the main CVM Wise Center campus are provided in Appendix Standard 3. The CVM is housed primarily in the Wise Center Complex, within walking distance of the main MSU campus. The VSC is in the Premier Imaging Complex, 10 minutes by car from CVM. The AERC and MVRDL are a two-hour drive from the CVM. The Aquatic Research and Diagnostic Laboratory is two hours west of the CVM. The Institute for Marine Mammal Studies (IMMS) is 4.5 hours south of the Wise Center on the Mississippi Gulf Coast.

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

MSU CVM's comprehensive safety program is coordinated with many safety-related services and resources on the MSU campus. The MSU Office for Environmental Health and Safety (EHS) ensures that the University and College comply with federal and state mandates regarding safety of personnel and animals in activities for the pursuit of education and research. EHS provides the tools necessary to educate and train personnel and serves as a resource for the MSU community. EHS is responsible for risk management (accident prevention, accident reporting, and risk management resources), safety (personal, biological, laboratory, chemical, fire, and life, occupational, and radiation), and environmental concerns (spills, disposal, recycling, respiratory protection, and indoor air quality). Specifically, this office has oversight for biological, radiation, chemical, laboratory, and shop safety. For example, radiation dosimetry badges are required and monitored regularly for all students, faculty, and staff working in the clinics (all locations). Also, the anatomy laboratory is regularly monitored for formalin levels by the MSU Office of Environmental Health and Safety (a letter documenting that levels are far below OSHA permissible exposure limits is on-file) and hazard communication training is provided for instructors, staff, and students who participate in laboratories using formalin-fixed samples. In addition, customized down-draft anatomy tables and a new ventilation system were installed in 2020. The EHS also measures waste anesthetic gas levels in the student surgical teaching laboratory each semester using Vapor Trak® Isoflurane/Sevoflurane Monitors and conducts intermittent monitoring of waste anesthetic gas levels in the Animal Health Center. Other resources, such as the State



Fire Marshall, provide inspection and recommendations for the College. Fire and building evacuation drills are conducted at least twice a year. The MSU Campus Safety Committee, State Fire Marshall, and the IHL Safety Officer conduct site visits a minimum of once each year with follow-up visits as needed to assure compliance with suggested improvements.

The MSU Dean of Students' Office oversees campus safety for all MSU personnel (faculty, staff, and students) and has deployed a Maroon Alert system ([Home | Emergency Information \(msstate.edu\)](https://www.msstate.edu/home-emergency-information)) to disseminate conditions and information community-wide via websites, e-mail, radio, and text messaging. Through cooperation with police, fire, and other first responders, this system provides notification and instructions during emergency situations. Ongoing incident reporting monitors the campus, reports its findings, and recommends and monitors improvement.

The College's safety plan is managed by the MSU CVM Disaster and Emergency Response Committee. This committee reviews policies, protocols, and procedures pertaining to safety and surveys areas for improvement using campus and state safety professionals, advisory task forces, and individuals' suggestions. The committee brings recommendations for improvement to the MSU CVM Dean's Cabinet. Committee responsibilities include risk assessment of occupational safety, biosecurity, and health, with a review of safety management for emergency preparedness, security, biological safety, and hazardous materials. Additionally, within the College, the biosecurity and biosafety committee, led by the assistant dean for clinical services/AHC director, consists of 10 faculty and staff representing each key administrative division. The committee leads efforts that ensure the Infection Control Manual mandates are supported and followed. <https://www.vetmed.msstate.edu/sites/www.vetmed.msstate.edu/files/2021-08/2021%20rev%20Infection%20Control%20Manual.pdf>

The College's security system includes 92 digital cameras and 51 exterior door alerts that monitor all exterior doors and other areas within the facilities. Most CVM facilities are accessible only by electronic key card (166 card readers). The MVRDL (and a portion of the Wise Center) are located within fenced compounds with security gates. A wireless panic button system is installed in seven areas, including the associate dean for academic affairs office, director of admissions office, academic affairs manager's office, AHC Admissions area, AHC Client Accounts and Administration office, and counselors' offices. Activation of this system notifies MSU Police that a 911 emergency is occurring, provides the location, and alerts College administrators via text. MSU Police are also available after-hours to escort students, faculty, and staff, upon request.

Facilities management plans are directed by the MSU CVM Cabinet. Numerous renovations and upgrades to the interior of the CVM have improved the teaching environment, enhanced appearance, and provided safer workspaces. Major projects completed since the 2014 site visit include:

- Two additional classrooms (\$3.8M state-funded bonds) with seating capacities of 134 standard/4 ADA and 114 standard/4 ADA, completed in 2015.
- Renovated ICU and repurposed space to increase capacity and add an intermediate care room (added 609 sq. ft. in 2014 and 401 sq. ft. in 2020. Total = 1,755 sq. ft.).
- Repurposed space to add a chemotherapy room for small animal patients - 375 sq. ft.
- Renovated space for a new small animal dentistry facility - 346 sq. ft.
- Completed construction of a clinical skills laboratory from repurposed space gained when the department of animal and dairy sciences vacated the 4th floor of the Wise Center - 2,200 sq. ft.
- Renovated student learning areas and rounds rooms in the teaching hospital (CVS, diagnostic imaging, small animal surgery, food animal medicine and surgery, ambulatory, small animal internal medicine, and anesthesia) - 5,719 total sq. ft.
- Repurposed space to add the Purina Food Room in the Animal Health Center - 681 sq. ft.
- Renovated and expanded the pharmacy.
- Renovated space for two new classrooms on the fourth floor of the Wise Center (currently used primarily by the veterinary medical technology program) - 1,464 sq. ft.
- Renovated space for population medicine faculty and learning space for students on the fourth floor - 3,189 sq. ft.
- Repurposed and renovated a building for a shelter medicine surgical facility on the CVM grounds - 1,208 sq. ft.
- Replaced flooring in multiple areas of building (including the small and large animal operating rooms, hallways and rounds rooms).



- Remodeled the Year-2 surgery laboratory and added new equipment (lights, tables, anesthetic machines, etc.). Added 4,012 sq. ft. for teaching lab and patient prep area.
- Created student lounge on the third floor with three small-group study rooms - 2,924 sq. ft.
- Constructed the Maggie Freeman-Bishop Office for Health and Wellness. The wellness center houses our student counselling service - 1,272 sq. ft.

12.3.4. Describe how safety and facilities plans are managed and reviewed at all off-campus core training sites.

Safety and facilities plans at off-campus sites are managed by the director at each facility with oversight by administrators at CVM. Safety protocols comply with all MSU requirements. Safety and facilities plans at IMMS are managed by the IMMS Director with input from on-site CVM faculty members, and CVM administration.

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

a. Classroom, laboratories, and other instructional environments and related equipment

The MSU CVM has a large auditorium (seats 360) and two lecture rooms (118 and 138 seats) used by our Year-1 and Year-2 classes. Four larger classrooms (104, 104, 95, and 68 seats) and several smaller classrooms and conference rooms are also available in the Wise Center (our major building on the Starkville campus) for use by elective courses and for small group learning. A lecture-capture system (Mediasite®) is used in all large classrooms whereby faculty may provide an electronic copy of the lecture's audio and projections for students to access and review through the campus Canvas® and MyMedia® web-based instructional software.

Laboratory spaces, including the anatomy and Year-2 surgical laboratories, are adequate to accommodate current student numbers and provide a safe environment for learning. The Year-2 surgical laboratory was remodeled and expanded in spring 2021.

In the AHC, conference rooms and small classrooms (20-35 seats each) are available for case rounds and small group discussions. Each conference room contains audiovisual equipment with lecture capture and real-time distance instruction capability.

A clinical skills laboratory on the 4th floor of the Wise Center provides numerous learning opportunities in a secure environment and is available 24/7. The lab is equipped with a variety of high- and low-fidelity clinical skills models, an ultrasound unit, anesthesia machines, audiovisual and computing support, and other learning stations and supplies where students can practice and perfect their clinical skills. It is "card access only," video monitored, and contains state-of-art instructional technology.

In 2020, \$500,000 (CARES Act funding) was used to upgrade teaching technology (computers, projectors, etc.) in all CVM classrooms, teaching laboratories, and conference rooms.

b. Teaching hospital, pharmacy, diagnostic imaging, diagnostic support services, isolation facilities, intensive/critical care, necropsy, and related equipment

The AHC and satellite clinics (including AERC following completion of the current expansion) are of adequate size for managing patient care and student rotations. Renovations to student areas and rounds rooms during the reporting period have improved the learning environment. A 14,000 sq. ft. addition to the AERC facility is underway (completion scheduled for February 2023) and includes additional clinic space for specialty services and ER care, student housing, and a conference room for teaching.

The AHC pharmacy, directed by two registered pharmacists and staffed by pharmacy technicians, is fully licensed by the Mississippi Board of Pharmacy and the Federal Drug Enforcement Administration. A dispensing system, Cubex®, for after-hours access and control of pharmaceuticals is available throughout the Animal Health Center and at the AERC and VSC clinics (16 units in eight locations). The Cubex® system integrates with the electronic medical record (Vetview®) to improve compliance and inventory management. A "clean room" environment (325 gsf) is available within the AHC pharmacy for compounding of pharmaceutical preparations. The pharmacy was expanded and renovated in 2018.



The MSU CVM Diagnostic Imaging Service includes a computed tomography (CT) unit, direct and indirect digital radiographic units, fluoroscopy unit, portable digital equine x-ray unit, three ultrasound machines, and a C-arm. The CT unit can accommodate both small and large animals. The large animal ambulatory trucks are equipped with portable ultrasound units and have shared use of a portable radiography unit. Computer monitors are present in the small animal examination rooms to allow clients to view diagnostic images obtained of their pet. In addition, the Veterinary Specialty Center houses a 3-T MRI, 64-slice CT, 4-D ultrasound, and digital radiography units, shared by human patients. VSC also houses the Varian® linear accelerator used for radiation oncology and shared by human patients.

Diagnostic laboratory facilities are adequate to support the teaching operation of the hospital. The CVM diagnostic laboratory also houses the necropsy facility (built in 2014) and is one of the four laboratories that constitute the MVRDL system. The entire laboratory system is American Association of Veterinary Laboratory Diagnosticians (AAVLD) accredited. Additionally, in-clinic laboratory areas are located in both the AHC and AERC to provide experience for students in performing typical diagnostic procedures after hours.

Isolation facilities in the AHC and AERC are adequate and continually monitored to improve processing and outcome assessment of cases. The small animal and equine isolation units are monitored by card scan access, and personnel entrants are logged. Two people are required to work together when using the equine isolation facility. Isolation facilities are video and audio monitored by overnight technicians and students. Isolation facilities for small ruminants and cattle are in the Couvillion Building and at the bovine working facility. All students are trained on proper isolation procedures (even if they are not directly responsible for an isolation patient).

The Joe Ann Ward Internal Medicine Critical Care Unit is adequate. The facility was expanded to 1,755 sq. ft. and renovated in 2020 to include an intermediate care ward.

A mobile veterinary unit is operated by the MSU CVM Shelter Medicine Program and allows students and faculty to provide spay/neuter services at the local animal shelter. In 2017, the College repurposed a research animal housing building (1,208 sq. ft., \$102,000) to create an on-campus surgical facility for the shelter medicine program. Regional shelters bring animals to the facility for physical examinations and spay/neutering. Since the beginning of the pandemic, the majority of surgeries conducted by our shelter medicine program have been in the on-campus facility.

c. Facilities for maintenance of teaching and research animals

Spaces (26,000 gsf) for holding animals for research or teaching have full AAALAC accreditation.

d. Research facilities and equipment

The research facilities and equipment are currently adequate. All research and teaching animals are on IACUC-approved protocols and husbandry and care is provided by LARAC under the supervision of a board-certified laboratory animal veterinarian. A \$605,358 grant from NIH was received in 2014 to improve the HVAC system in the research wing (3A) animal facilities. Renovation (funded by \$688,000 NIH COBRE grant) of the second floor of the research wing was completed in 2015. In 2019, a ruminant working facility (26,000 gsf) was constructed behind the Wise Center on the CVM campus and is used to conduct a variety of research projects with cattle and small ruminants.

e. Administrative and faculty offices

Administrative and faculty offices are adequate. Innovative solutions, such as subdividing several larger rooms, have allowed spaces to be utilized more efficiently and effectively. In 2020, the College expanded into additional renovated office space, previously occupied by the MSU Department of Animal and Dairy Sciences, on the fourth floor of the Wise Center.

f. Service areas for students (for example: lounges, cafeteria, etc.)

The Pegasus Dining Room (operated by Aramark) and adjoining cafeteria provide convenient food services, including hot breakfast and lunch Monday through Friday. This area will be converted to a “grab-and-go” service in the near future. In addition, vending units provide 24/7 service. Seating areas and tables are provided throughout the lobbies for use by individuals or groups of students for



social interaction or studying. Wireless internet access is available throughout all College facilities. A student lounge and exercise facility are located on the third floor and fourth floor of the Wise Center, respectively. A full-service exercise facility (Sanderson Center), other dining facilities, and a food/clothing bank are located nearby on the main MSU campus.

g. Building infrastructure (for example: air handling, vent hoods, etc.)

The air handling units and motor control centers are fully functional. The College’s cooling tower was replaced in 2015 (\$1.5 M). The elevators are fully operational but are original to the building and state funds are being sought to upgrade them.

12.3.6. 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).

Protocols are posted in all isolation facilities. Student are taught isolation procedures beginning during Year-3 orientation to clinics. All Year-3 students receive instruction via lecture and PowerPoint® slide presentation on infection control and biocontainment. This instruction is emphasized further at the beginning of each Year-3 CVS rotation through small group (10-12 students) and roundtable discussion with slides. Each student is then required to enter the small animal isolation facility using appropriate procedures and complete the step-by-step process of admitting a patient into isolation. Isolation facilities are video monitored as well. Students on the Year-3 equine medicine and surgery rotation are also required to don personal protective equipment and properly complete the steps for admitting a patient into equine isolation. Food animal and ambulatory students are also taught the steps of biocontainment and biosafety while on the clinical rotation and on farm visits.

Students and staff are informed that the College will compensate them for expenses related to confirming a definitive diagnosis of any suspected zoonotic disease, provided they report it to the assistant dean for clinical services/AHC director (self-reporting required due to Health Insurance Portability and Accountability Act). Once reported and confirmed, all students and staff involved in caring for the infectious patient are alerted to seek medical attention.

12.3.7. Describe current plans for improvement.

The College’s facilities management plan has been supported over the years by the state legislature. The College has submitted a request for state bond funding for two projects, an animal research facility (\$12M) and facilities upgrades including 11 new elevators and back-up generators (\$4M). The requests have been approved by the MSU Division of Agriculture, Forestry, and Veterinary Medicine. A priority list for the Division has been generated and approved building projects have been placed in a queue. Currently, anticipated funding (depending on state revenue) for the facilities upgrade is 2025 and for the animal research facility is 2026.



STANDARD 4: CLINICAL RESOURCES





STANDARD 4. CLINICAL RESOURCES

12.4.1. Complete Tables A, B, C, D, E, F, and G, for the past five years and analyze trends for each species (category). Include only those patients, farm call, and animals examined that have direct student involvement.

Tables A, B, D, F, G, H, and I are provided in Appendix Standard 4.

Tables C and E. CVM currently has no required rotations at privately owned and operated facilities or ambulatory services. The enhanced clinical practicums are conducted at privately owned facilities but are currently in the pilot testing stage and are electives. Students in the class of 2025 will be required to participate ECPs starting in their third year, - 2023. However, we are reporting cases our students were directly involved with during externship experiences (Appendix Standard 4).

Small Animal: The total small animal caseload has increased 3.3% over the past five years or an average of 0.8% annually. The increase in caseload has occurred in the AHC, AERC, and in the shelter medicine program. The diversity of cases seen has increased as well.

Large Animal: Equine caseload has increased by 24% in the AHC over the past 5 years. The equine caseload is composed predominately of Western performance and pleasure horses. The on-campus food animal caseload decreased slightly in 2018-2020 but rebounded in FY2021. It is heavily bovine. The swine in-house caseload is limited generally to 4-H Project swine and miniature pigs. CVM maintains teaching herds on our campus (horses, calves, small ruminants) to support teaching and augment clinical caseload.

Ambulatory: The College conducts an ambulatory practice with three full-time clinicians and three house officers. With recent changes in agriculture that have occurred in the Starkville area, as well as the seasonality inherent in bovine and equine practice, the on-farm ambulatory caseload of large animal practice has become more variable and, if current trends continue, has the potential to impact the students' learning experience. Measures taken to proactively address this situation include efforts made to improve client service and a reduction in our ambulatory service fees, and thus increase caseload. The College also now maintains several small teaching herds used for student learning (horses, calves, small ruminants). In 2020, the enhanced clinical practicums (ECPs) were introduced to further augment clinical teaching that occurs in the teaching hospital and ambulatory clinic, particularly that of farm animals. The initial focus of the ECPs is the recruitment of mixed and large animal general practices to provide valuable learning experiences and introduce students to rural and small-town practice. Enhanced clinical practicums are encouraged for the classes of 2022, 2023, and 2024, and will be required for the class of 2025 and thereafter. For ECPs, the CVM will reimburse student expenses up to \$150 per week.

Population Medicine: The population medicine case load has increased since the creation of a three-week rotation in 2016. The rotation provides experiential learning in epidemiology, problem-solving, and herd health using a variety of animal species including fish, poultry, bovine, canine, feline, and equine.

Avian, Exotic Animals, and Wildlife: A member of CVS faculty has extensive experience with exotic animal private practice and leads the College's effort to teach students about the care of exotic patients. The CVS rotation conducts exotic animal handling laboratories for students during each clinical rotation (one hour for reptiles, and two hours for small mammals and birds). CVM also has an MOU with Cedarhill Animal Sanctuary (located 40 miles from the CVM), a facility that houses exotic animals including exotic birds, tigers, and lions. The agreement allows interested veterinary students to visit the sanctuary during the CVS rotation with a CVM faculty member to handle and provide medical care to exotic birds and small mammals. Students may also participate in externship experiences at private practices and zoos/wildlife parks. Since 2017, CVM has had a formal relationship with the IMMS on the Mississippi Gulf Coast and currently has two CVM faculty members on staff at the facility. During the laboratory services (pathology) rotation, students visit IMMS to conduct necropsies and physical examinations on sea turtles, dolphins, and other marine animals (in 2019, 82 students participated in this activity). In addition, students may also elect to complete externships at IMMS, enroll in an elective course entitled "Marine Animal Health," and participate in a monthly seminar series ("Marine Monday!") available virtually. Some students also complete externships at the Mississippi Aquarium, also in Gulfport, Mississippi, and the two veterinarians at that facility are adjunct faculty at the College.



Necropsy: During the four-week diagnostic laboratory services clinical rotation at CVM, students serve on necropsy duty each working day and are on call for after-hours/weekend duty. While on this rotation, each student must demonstrate proficiency in performing a necropsy and in preparing a written report describing the necropsy. Pathology general rounds are held weekly, with all CVM personnel invited to attend either in person or virtually. The necropsy caseload is reported in Table G. (Appendix Standard 4).

12.4.2. Describe and analyze the adequacy of normal and clinically diseased animals (hospitalized, out-patient, field service/ambulatory and production medicine) used by students in the course of their learning experiences.

The caseload in the hospital and clinics, ambulatory service, and production medicine service provides abundant normal and clinically diseased animals for teaching our students. Students are integrally involved in all cases. Though several clinical services see primarily referral-level cases (small animal internal medicine, small animal surgery, neurology, oncology, ophthalmology, and dermatology), students are responsible for obtaining a thorough medical history and the initial patient assessment (including physical examination), and they participate in treatment planning and implementation under faculty and house officer supervision. Students also perform much of the patient care and client communication for each case. A typical case will involve multiple specialty services that work together to provide integrated, comprehensive care.

The community veterinary services rotation (CVS) is a first-opinion, small animal practice, but student experiences in CVS go beyond standard wellness care. Each six-week rotation of approximately 12 students see an average of 348 in-clinic cases. These cases include wellness examinations, sick animal cases, walk-in emergencies, boarding, dentistry, behavior, and exotic animals. Additionally, within the rotation, each student spends three days seeing cases in the dermatology specialty service. To complement the caseload, a three-hour dental procedures laboratory is conducted in CVS. In addition, students participate in two exotic animal handling laboratories, may visit the Cedarhill Animal Sanctuary with a CVS faculty member to handle and treat exotic birds and small mammals (elective opportunity), and have an elective opportunity to visit a local practice that manages many exotic cases. Rounds sessions covering a variety of exotic animal topics are presented. (Appendix Standard 4: CVS Rotation Activities). During the CVS rotation, each student, accompanied by a faculty member, spends four days at a local animal shelter as part of “shelter medicine week.” This activity provides excellent opportunities to examine typical animals presented in general practice and enables students to practice general diagnostic procedures such as ear swabbing, skin scraping, fecal examination, and initiation of out-patient level treatment. During a typical shelter week, each student performs an average of 32 physical examinations and approximately one diagnostic procedure per exam. On these visits, students also observe and review practical aspects of biosecurity and disease prevention in animal shelters.

The CVS rotation contains client communication training, including individual student summative and formative evaluations of videotaped student-client interactions in exam rooms and evaluation of students’ communication by the CVS faculty members. An overview of the communication training program is available in Appendix Standard 4. Each rotation also has six “lunch and learns,” which enable students to interact with industry representatives or technical services veterinarians and includes a session on communication and marketing. Speakers at “lunch and learn” sessions (as well as all other outside speakers in the CVM) must be approved according to the Policy on Access to MSU CVM Students by Outside Organizations.

CVM has nine horses, 6-20 cattle/calves, and a herd of small ruminants that are always available for teaching to complement the in-clinic large animal caseload. These animals are used for technique practice in the Year-2 veterinary student labs and for practice/review in clinical rotations and elective courses. When necessary, the College also arranges to secure animals from the adjacent MAFES experiment farm for specific teaching needs. For example, the CVM regularly “borrows” six to eight calves affected with chronic respiratory disease to provide opportunity to auscultate abnormal lung fields in one Year-2 class. Six pre-weaned “bottle” dairy calves are maintained for food animal rotation students to learn basic husbandry and practice physical examination techniques. The College maintains an excellent working relationship with MAFES, and, in turn, provides routine care for the approximately 250 dairy and 800 beef animals in those units. Clinicians coordinate with individual units to maximize the teaching value of routine veterinary care. For example, each year one of the MAFES production units requires the preparation of “teaser” bulls (vasectomized with penile deviation). These surgeries are performed by students and interns under direct



supervision of faculty during the Bovine Theriogenology elective course.

The ambulatory service averages nearly 900 calls per year. Among these calls are a 2,000 head beef stocker conditioner, numerous medium-sized beef herds (50-400 cows), and a large equine stable. The service provides herd health service to all experiment station locations (one dairy of 250 cows and four cow-calf units of about 200 cows each). Ambulatory also serves two local, weekly auction markets (sale barns). This activity enables students to participate in routine health and real-world regulatory procedures.

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

Aquatic Animal Medicine: The College has a formal relationship with IMMS and currently has two faculty members stationed at the facility. Students may conduct necropsies on marine animals with one of our board-certified pathologists during the laboratory services rotation or complete an externship experience working with veterinarians and other scientists involved in research and the rescue/rehabilitation of endangered Kemp's ridley sea turtles and bottlenose dolphins. A marine animal health elective course and the "Marine Monday!" seminar series is available to all interested students.

Animal Emergency and Referral Center (AERC): Year-4 veterinary medicine students have a core, two-week rotation at AERC. AERC is staffed by two full-time veterinarian-directors and four full-time and nine part-time emergency clinicians. Two ophthalmologists and one dermatologist from the Starkville campus see patients at AERC several days per month. Other specialists from the College also work intermittently at AERC to provide patient care and student teaching. While at AERC, students are integrally involved in the medical care of emergency cases and regularly observe communication with referring veterinarians and doctor-client discussions. There are no interns or residents at AERC, so students work directly with veterinarians and professional staff.

Veterinary Specialty Center (VSC): The VSC, located at the Premier Health Complex in north Starkville, houses the College's neurology, ophthalmology, and radiation therapy services. The complex has an on-site linear accelerator and imaging center with advanced imaging capabilities (3- Tesla MRI, 64-slice CT). These technologies are used daily on human patients and are also available for use in animal cases. Over the past five years, an average of 266 MRIs, 117 CTs, and 158 radiation treatments were performed on veterinary patients each year at VSC. VSC is an excellent example of a "One Health" endeavor, using equipment and personnel resources to benefit both human and animal health. The neurology service includes two board-certified veterinary neurologists and four residents. The ophthalmology service is comprised of two board-certified veterinary ophthalmologists and two residents. The radiation therapy service is managed by a board-certified veterinary radiologist. Students interact with cases at VSC as they do with referral cases presented to the AHC, obtaining history, conducting physical examinations, assisting in diagnostic and therapeutic procedures and, in most cases, communicating with clients and referring veterinarians.

Shelter Medicine: The Shelter Medicine Program operates a spay and neuter facility on the CVM campus. The program cooperates with over 25 shelters in North Mississippi to provide spay and neuter services as well as advice on population medicine. Regional shelters deliver animals to the facility where students perform complete physical examinations and blood tests, administer general anesthesia, and perform the necessary surgical procedures under direct faculty supervision. All CVM students participate in the spay and neuter program for eight days. The student assumes the role of surgeon, while the faculty member scrubs in as surgeon's assistant, available if complications arise. The patients are returned to the shelter after recovery. In FY 2021, 4,787 procedures were performed by our students in this facility. The shelter medicine program also uses a self-contained veterinary mobile unit in which students conduct spays and neuters at the local animal shelter in Starkville (the mobile unit previously traveled to regional animal shelters, but that practice has been discontinued). Interested Year-4 students may also select a two-week shelter medicine elective. In the elective course, students act as solo surgeons, with faculty available to answer questions and assist with complications. Most of our students choose this elective each year, so it will become a required rotation beginning in FY 2023 in the first of several clinical year curriculum changes to be fully implemented by May 2023. The program maintains a system for monitoring surgical complications to ensure surgical care meets acceptable standards. The typical MSU CVM student will have spayed or neutered nearly 60 dogs and cats by the time of graduation. For the class of 2021, students averaged 68 spays/neuters by the time of graduation.



Advanced Equine Reproduction: A four-week elective in advanced equine reproduction for Year-4 students is offered during the equine breeding season (April, May, and June). Each year, 12 to 15 students receive in-depth, hands-on, clinical experience in mare management, including rectal palpation, ultrasound examination, artificial insemination, embryo transfer, and use of cooled and frozen semen. Also, students enrolled in this elective gain clinical experience in stallion management, including breeding soundness examination, semen collection, and semen preparation for artificial insemination, shipment, and cryopreservation. Access to approximately 30 mares housed at the MAFES Horse Unit, located on the MSU South Farm, and an additional six mares and a stallion housed at MSU-CVM are utilized in student instruction. These animals provide an abundance of palpation and breeding experiences for participating students. Additionally, students assist residents and graduate students with research projects involving pregnant mares. Within this elective, each student routinely performs more than 150 rectal/ultrasound examinations on mares and develops a high-level of competence in equine reproductive management.

12.4.4. If off-campus clinical instruction sites are used regularly by multiple students, complete Table H and describe the planning, supervision, and monitoring of students, and contracting arrangements for non-institutional based faculty (Table I).

Table H and Table I are provided in Appendix Standard 4.

The CVM has core rotations using two off campus sites: Animal Emergency and Referral Center (AERC) and the Veterinary Specialty Center (VSC). As with all CVM rotations, the MSU CVM Curriculum Committee provides primary oversight on course planning and approval, with formal approval through the MSU University Committee on Courses and Curriculum. All rotations have a CVM faculty member with appropriate credentials as the instructor of record and a course syllabus that includes clearly defined learning objectives and metrics for evaluation. During both of these off-campus rotations, students are directly supervised by CVM faculty members.

The College partners with the Institute for Marine Mammal Studies (see program description, Pg. 19).

A portion of the shelter medicine rotation's spay/neuter experience is conducted at the animal shelter located in Starkville, Mississippi (see program description, Pg. 19).

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

Student involvement and responsibilities are similar in all clinical programs. Students participate in client contact, collect signalment and history, and perform the initial physical examination. Students use a problem-oriented, medical approach to develop a problem list, differential diagnoses, and diagnostic plan. They are involved in all aspects of diagnostics and therapies (under clinician oversight). Students are responsible for the primary care of hospitalized patients; work closely with technicians, technology students, house officers, and faculty; and are responsible for daily patient assessment and maintenance of a comprehensive medical record. Within the clinical program, students are exposed to financial aspects of veterinary medicine as they are present when informed consent and financial discussions are conducted by the attending clinician, and they observe and assist with generation of patient charges. Depending on circumstances, students often maintain direct client communication with daily patient updates. Students draft discharge instructions and accompany the owner through the discharge activities, including bill payment.

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

Clinical subject matter experts (including board-certified specialists) and patients/specimens are essential to student learning during the clinical experiences. Students on rotations work in small groups led by clinical specialists (assisted by residents and interns, except at AERC) to provide hands-on clinical case management. All rotations have active clinical cases that form the basis of clinical teaching. Clinical material is discussed in daily rounds, which may take place in the ward as the animal is observed or in rounds rooms where the medical record and diagnostic images can be displayed via the Picture Archiving and Communication System (PACS). Clinical experts also deliver lecture and laboratory instruction throughout the four-year program.



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.

The AHC, VSC, and MVRDL utilize the VetView® electronic medical record system (AERC uses Impromed® but is transitioning to VetView® in Spring of 2022). For in-house clinical patients, records are maintained in electronic format. The diagnostic laboratory maintains a combination of paper and electronic records. As a single system, the hospital module of VetView® integrates with the diagnostic modules and supports delivery of requests and reports across services. In addition, the PACS integrates with VetView® to allow diagnostic images to be associated with a case. The VetView® database supports simple and complex searches, and medical records can be accessed anywhere within the AHC. The ambulatory service produces a paper-based record at the point of care. When ambulatory clinicians return from a call, activities are summarized and entered into DVM Max®, a practice-based software product that records and reports herd work. For billing purposes, client invoices are summarized monthly, and charges are posted to VetView®, by which bills are generated and payments posted.

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

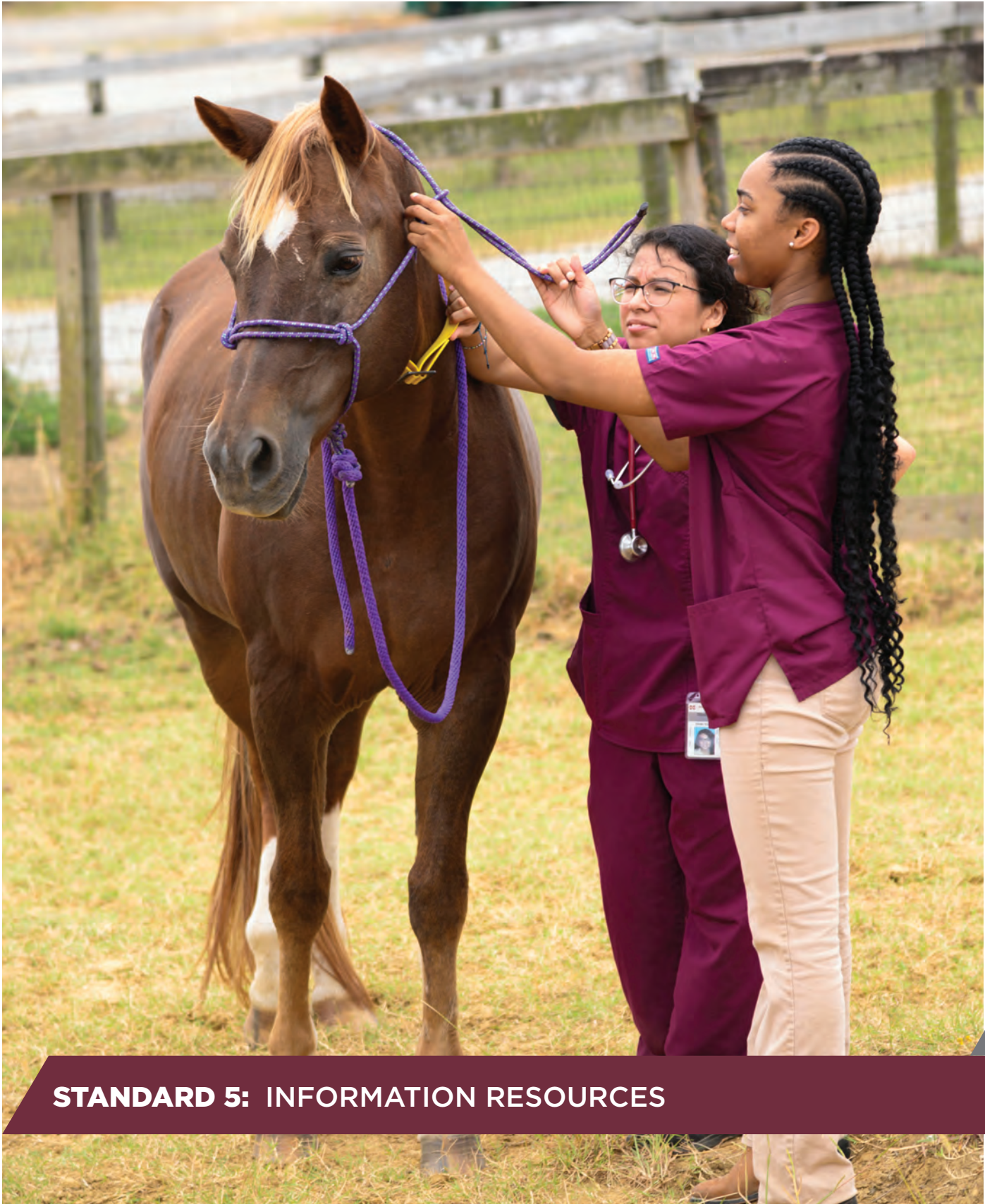
With recent changes in agriculture that have occurred in the Starkville area and the seasonality inherent in bovine and equine practice, the on-farm ambulatory caseload of large animal practice has become more variable and has the potential to negatively impact the students' learning experience. Fees charged by our ambulatory service have been reduced and changes have been made to improve client service to increase the ambulatory caseload. The College also maintains several small teaching herds/flocks used for student learning (horses, calves, small ruminants). In 2021, enhanced clinical practicums (ECPs) were introduced in a pilot program in which students may elect to participate. In May 2023, the ECPs will become required to further augment clinical teaching that occurs in the teaching hospital and ambulatory clinic, particularly in relation to farm animals.

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

Cases presented to the AHC or satellite clinics are used fully for teaching. In every rotation, students are active participants in case workup and management. At the AHC, students in all clinical rotations attend daily rounds to review and discuss case action plans and management. At AERC, students attend topic rounds to learn about common diseases and procedures. In most rotations, students are required to present a case or topic discussion.

Year-4 students are required to give a 20-minute oral presentation to the College as part of the Clinicopathologic Conference (CPC) course. This presentation reviews an actual clinical case or research project in which the student participated. A written paper approved by a faculty advisor is produced, using journal format, and it is archived (for three years) on the CVM intranet. CPCs occur every Friday morning and are presented to the entire College, including faculty, house officers, and students.

Pathology rounds are held each Friday afternoon and feature gross specimens from necropsy cases conducted during the week. Students provide a signalment and history, summary of ante-mortem medical management, gross findings, and postmortem diagnostics. Monitors in the necropsy observation area display histopathology images and antemortem radiographic findings. Frequently, radiology residents attend rounds to discuss the diagnostic imaging (radiographs/CT/MRI) data for the case, which provides an important correlation to the clinical picture. Throughout the COVID-19 pandemic, pathology rounds continued virtually utilizing images taken at necropsy. Pathology rounds are scheduled so all Year-1 students can attend, which complements the didactic pathology course offered in Year-1. Additionally, Year-1 students are offered an opportunity to volunteer in necropsy during unscheduled afternoons and weekends. This provides an opportunity for Year-3 students on necropsy to teach what they have learned, and for Year-1 students to review anatomy and apply foundational mechanisms of disease learned throughout Year-1. In spring semester 2021, 57 Year-1 students volunteered to participate in necropsy.



STANDARD 5: INFORMATION RESOURCES





STANDARD 5. INFORMATION RESOURCES

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

Information retrieval: As a branch of the Mississippi State University Libraries, the CVM library has access to all resources contained, owned, and subscribed to by MSU. Specifically, there are 106,664 current electronic journal and database resources available to all MSU faculty, staff, students, and alumni. The CVM library currently holds 14,617 individual monographic titles with 23,102 total volumes, 503 electronic book titles, 23 CVM-paid print journal subscriptions, and 125 electronic journal subscriptions. A total of 72 electronic journal titles are paid for by CVM, with additional electronic journals paid for by the MSU Libraries. An annual acquisitions budget is provided to the CVM library by the CVM (\$164,000), and through these annual funds, information retrieval and learning resources are maintained and enhanced. Selections for new and additional materials are encouraged and are received from CVM faculty, staff, and students.

Databases for the College budget, financial records, and contract/grant awards are readily retrievable and are maintained on the ITworks® server. Information is backed-up locally and off-site (MVRDL). Medical and client records are stored within the VetView® database (VVPRODSE) running Oracle® 12c Standard Edition Release 2 for Redhat Linux. The production database (VVPRODSE) is replicated live to two stand-by production databases (VVPRODES1, VVPRODES2) using Shareplex from Quest® software. This provides two live, completely functional, updated, stand-alone database servers that could be used at any time as the production database server. The production database nightly backup is transferred to a server in an off-site (MVRDL) location.

Learning resources: All MSU CVM classrooms are equipped with projectors, cameras, computers, and audiovisual technology necessary for synchronous/asynchronous distance instruction. A lecture capture system (Mediasite®) is used in all five large classrooms so the audio and projections from each lecture are available to students through the campus Canvas® and MyMedia® web-based instructional software. Wi-Fi service is available in all CVM facilities (eduroam). In 2020, \$500,000 (CARES Act) was allocated to modernize the computers, cameras and projectors in classrooms, surgery suites, teaching laboratories, clinical rounds rooms, and at the IMMS facility to facilitate distance education.

The clinical skills laboratory located on the fourth floor of the Wise Center houses numerous teaching models and learning stations. It is available 24/7 and contains current instructional technology.

In the Year-2 surgery course and continuing into Year-3 and Year-4 during their clinical training, students utilize the VetView® electronic medical records system. This system enables students to access client information and patient medical records and to submit laboratory, imaging, and prescription requests for clinical patients. Clinicians check and approve student entries. VetView® is accessible from off-campus locations.

All CVM students have access to a personal email account and data storage space. MSU CVM provides technology support for students' personal laptops and uses E*value to track core competencies.

While on the CVS rotation, a student's exam room interaction with clients can be recorded and used to provide individual summative and formative evaluations of their communication skills.

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

CVM faculty, staff, and students have access to resources at the CVM branch library, as well as those at the main MSU Library. These resources include not only the MSU Research Services Department at the main library but also those of the main library's Instructional Media Center, which offers professional consultations, a multimedia lab, and an environment for learning new technologies for teaching and research. Additional instructional support is provided by the CVM's Office of Academic Affairs and Information Technology Services unit. Support is also available from the College's coordinator of photographic services.

The CVM library employs a faculty librarian, with the professorial rank of associate professor, who holds a master's degree in library and information science and has 20 years of professional library experience. The librarian is supported by two full-time staff members - one with 14 years library experience, a BS in information technology, and a master's degree in instructional technology; and one with five years library



experience and a BS in communications. The CVM library faculty and staff are assisted by four student employees. All staff members are available for impromptu research assistance. The librarian is available for in-depth research consultations, orientations, and library instructional sessions. Also, the University library faculty and staff support workshops on research methods and their application to veterinary medicine.

The MSU CVM Information Technology Service is managed by Michael Dawkins, BS, MBA, who also holds a master's degree in instructional technology, and is supported by a staff of five technicians. Resources from the MSU IT Department are also available when needed. The AHC Medical Records Office is managed by Susan McBride, RHIT, who is supported by a staff of three. The Office of Academic Affairs is managed by Associate Dean for Academic Affairs Jack Smith, DVM, Dipl. ACVT, and supported by 10 staff members, including Brittany Moore-Henderson, DVM, director of admissions; Jenny Burns, academic affairs manager, who holds an MS in secondary education, MS in workforce education leadership, and an MBA; Cheron Snow, MDL coordinator, who holds a BS in nursing; Kerry Files, administrative assistant; Robin Graves, admissions manager, who holds an MS in counseling, and student development in higher education; and Meredith Nagel, admissions coordinator, who holds an MS in instructional technology.

12.5.3. Describe the reliability and methods of access, as well as security considerations, to library information resources for faculty and students when they are on and off campus.

The CVM library is open 90 hours per week (Sunday 2 PM - 10 PM, Monday - Thursday 7 AM - 11 PM, Friday 7 AM - 5 PM, and Saturday 10 AM - 6 PM). Hours are expanded during final examinations. The seating capacity of the library is 88. Students have access to a computer lab (14 computers) that may be used for e-mailing, accessing course software (including videos), searching library resources, and printing to both black and white and color printers. The library offers five well-equipped study rooms and 40 seats for quiet, individual study located throughout the library, including study carrels, small tables, and armchairs.

Using the MSU Libraries' webpage, faculty, staff, and students can access the online catalog and all databases to search for and/or request materials. Other research services available on and off campus include: "Ask-a-Librarian," which allows faculty, staff, and students to obtain research assistance via email, telephone, online chat, or in person; library instruction classes; and technology classes at the MSU Instructional Media Center. Customized, online research guides and workshops are available. The CVM library participates in DocLine, the National Library of Medicine's interlibrary loan request system, which provides access to journal holdings in over 3,000 medical libraries. In addition, MSU libraries have reciprocal borrowing agreements with Institute for Higher Learning state-supported libraries, as well as several libraries throughout the Association of Southeastern Research Libraries Consortium. The main library's interlibrary loan service is yet another asset to acquiring resources not available within the CVM and main libraries.

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

Librarians are available for in-depth research consultations, orientations, and instructional sessions. Many online tutorials, research guides, and workshops are also available. Specifically, the MSU Library Instructional Services Department provides workshops on topics related to research, scholarship, and academic integrity. Special workshops are available on using various databases and include Survival Skills for Graduate Students, Databasics, Practical Professor, and EndNote.

12.5.5. Describe assessment of students' skills in retrieving, evaluating, and applying information pertinent to veterinary medical sciences including clinical case management as preparation for lifelong learning.

Students' skills in retrieving, evaluating, and applying information are evaluated in several places in the curriculum. During the internal medicine rotation, all students participate in a journal review process. During the population medicine rotation all students complete a critical appraised topic (CAT) which requires they pose clinically relevant questions and then search for, summarize, and present research data that answers the question. During the Clinicopathologic Conference Course (CPC), students review the medical literature and prepare a written manuscript (journal format) on a clinical case or research project with which they were involved. They also make a college-wide presentation on the topic. Each students' performance is evaluated by his/her faculty mentor and other faculty in attendance during the oral presentation using the following rubric:

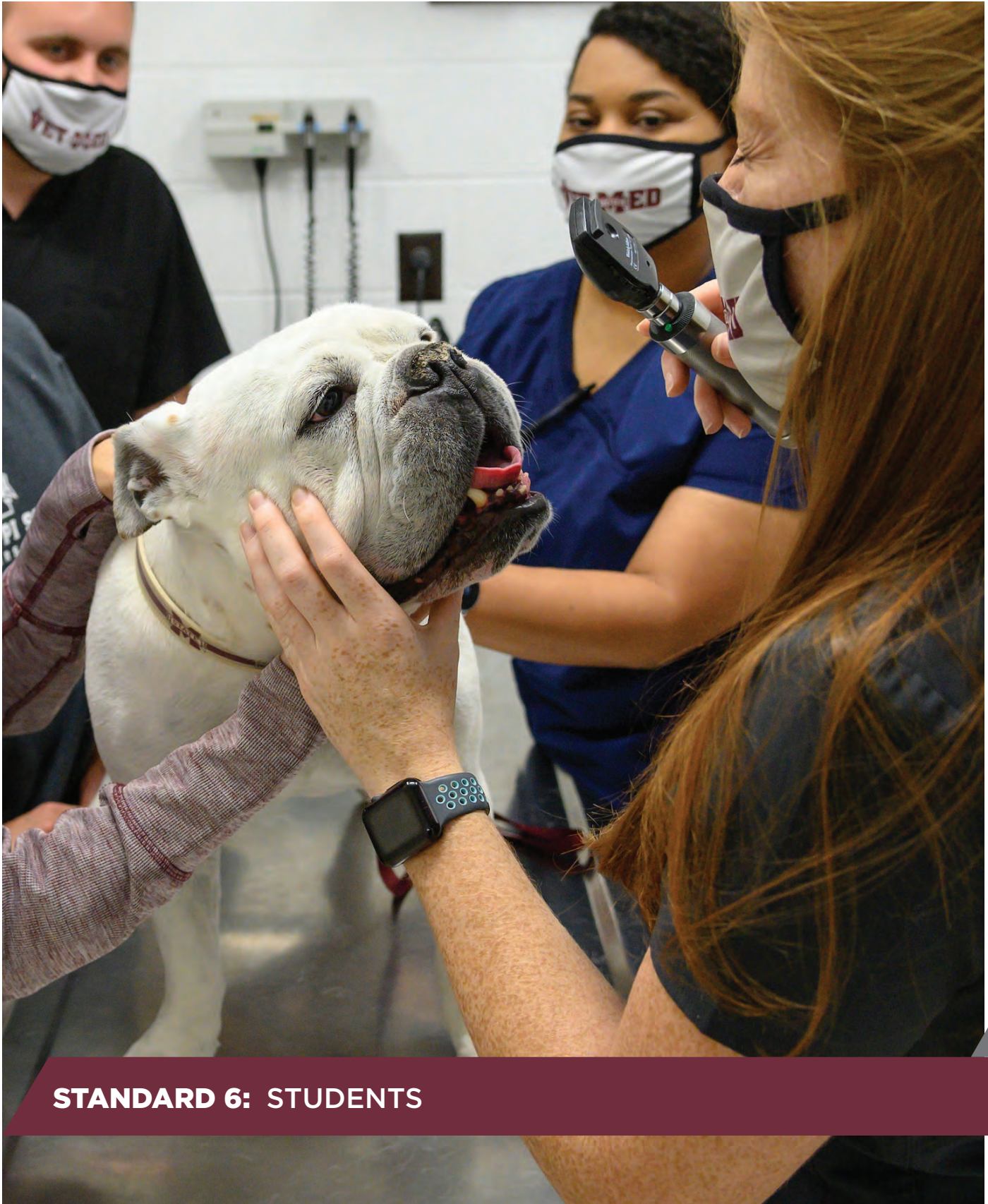


COMPETENCY IN RETRIEVING, EVALUATING, AND APPLYING INFORMATION IN THE CPC COURSE

	YES	NO	MARGINAL COMPETENCY
The student was able to demonstrate competency in information gathering and retrieval pertinent to this activity/course.			
The student was able to demonstrate competency in thorough evaluation of all information gathered for this course.			
The student was able to demonstrate competency in thorough application of the information gathered into his/her final document and presentation.			

12.5.5 Describe current plans for improvement.

Library faculty and staff continually upgrade their skills by training on new resources, databases, and current veterinary research methods. The librarian attends professional development meetings and workshops involving veterinary medicine and other relevant sciences. An ongoing assessment of library services and access to information is surveyed continually through local and national survey programs such as the Association of Research Libraries' (ARL) LibQual Survey. Categories of questions related to the CVM library are included in these surveys. Results from these surveys are studied carefully and used to improve current programs and services.



STANDARD 6: STUDENTS

STANDARD 6: STUDENTS





STANDARD 6. STUDENTS

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

Tables A, B, C, and D provided in Appendix – Standard 6.

The College accepts at least 38 Mississippi residents into the Year-1 class. Five South Carolina residents and seven West Virginia residents have been admitted yearly as contract students since 2006 and 2009, respectively. The remaining admitted applicants are non-Mississippi residents. Transfer students in good academic standing who have met course requirements are accepted if a position is available in the Year-1 or Year-2 classes. The number of Year-1 students admitted increased to 114 in 2021. (Planned for 112, but more students accepted than anticipated.) Differences in number of students admitted to the Year-1 class and those listed in later years through graduation reflect students dismissed from the professional program, transfers into and out of the college, and students leaving for personal or health reasons.

The MSU CVM Department of Clinical Sciences offers rotating internship positions and residencies in small animal medicine, small animal surgery, neurology, diagnostic imaging, primary care, shelter medicine, and anesthesia. The department also offers MS and PhD degrees with a variety of emphases. The MSU CVM Department of Pathobiology and Population Medicine offers residency programs in theriogenology, equine internal medicine, equine surgery, poultry medicine, epidemiology, and anatomic pathology. Annually, the department offers internships in food animal medicine and equine medicine and surgery. The department is home to students pursuing an MS or PhD degree with emphases in theriogenology, aquaculture, epidemiology, food safety, and diagnostic/infectious diseases. The department also offers a nonthesis MS in poultry medicine.

The College provides MS and PhD programs in veterinary and biomedical sciences (VBMS) and a PhD in environmental toxicology (ENVT). These graduate programs provide advanced educational opportunities for students in a broad range of biomedical and veterinary sciences. Faculty in all three academic departments supervise each student's graduate education. Students in the VBMS program specialize in disciplines such as clinical research, biocomputing, epidemiology, health disparities, infectious diseases, and toxicology.

In addition to the traditional MS and PhD programs in the College, there is a path within the DVM program in which students may pursue a DVM-PhD or DVM-MS dual degree. Information concerning the DVM dual degree programs can be found on the combined DVM-graduate degree programs page at [Research Programs | Vet Med \(msstate.edu\)](https://msstate.edu/research-programs/vet-med).

Recruitment and retention of a diverse student body is a College priority with a goal to create an academic environment that enhances inclusiveness for all people. The number of URM students enrolled at CVM has increased over the past five years and multiple programs are in place to further increase that number. Dr. Bindu Nanduri (professor of bioinformatics) is CVM's diversity officer and serves as chair of the MSU CVM Diversity and Inclusion Committee. She is a member of the CVM Dean's Cabinet and serves on the MSU Diversity Leadership Council. The CVM's diversity and inclusion committee collaborates with MSU groups that focus on cultural and racial diversity, and its members undergo training in diversity and unconscious bias. They also coordinate with the MSU CVM Recruitment Team to enhance student recruiting in Puerto Rico and at historically black colleges/universities (HBCUs). Dr. Brittany Moore-Henderson, CVM director of admissions, continues to be a leader in diversity efforts within the College and outreach to under-represented populations. Cultural and ethnic diversity are addressed during orientation for incoming students and in the Professional Development courses in Phase 1. The MSU CVM VOICE chapter is a student-run organization that addresses a need for socio-cultural awareness and contributes to enhancing the diversity of the profession and the cultural competencies of veterinary students. VOICE is active in promoting the MSU CVM VetAspire and Vet Camp programs to elementary, middle, and high schools throughout the state of Mississippi, and they actively engage with local community organizations such as local Boys & Girls Clubs.

The College entered into agreements to accept a limited number of students for clinical rotations with St. George's School of Veterinary Medicine (2002) and with St. Matthew's College of Veterinary Medicine (2013). However, since 2017, only 27 clinical year students have enrolled at the College. Once our larger class size begins clinical training in 2023, we plan to discontinue admitting additional clinical-year students.

A CVTEA accredited Bachelor of Science degree program in veterinary medical technology was established in 2010, and the first class enrolled for the 2010-2011 academic year. Acceptance is determined by evaluation of the academic record, critique of the written application and references, and an interview.



The third (didactic) and fourth (clinical) years of the veterinary technology curricula are taught by the CVM. Fourth year technology students are integrated into the clinical rotations with veterinary students with a goal being to educate both groups about the importance of a collaborative healthcare team. Total salaries, fringes, contractual and commodity costs to conduct the program is approximately \$425,525 per year. For FY2021, the CVM received \$483,144 in tuition from the VMTP.

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, financial aid counseling programs, and clubs and organizations. Demonstrate that students are informed of and have ready access to academic counseling, personal wellness, financial aid, and career planning services.

Registration: Registration assistance is provided by four staff members in the MSU CVM Office of Academic Affairs and the Academic Affairs Manager Jenny Burns. The Office of Academic Affairs provides detailed registration information to all students and supervises registration for all didactic courses, clinical rotations, externships, and enhanced clinical practicums. It also ensures that all course requirements for graduation are met. Following acceptance into Year-1, students are granted access to a web-based site (MyCourses®) that provides information on registration, schedules, books and supplies, and links to the MSU Office of Financial Aid.

Testing and Disability Accommodations: Exams are administered using ExamSoft® and supported by the staff from the Office of Academic Affairs and information technology department. Students with learning and testing disabilities meet with the MSU CVM Clinical Psychologist Dr. Pauline Prince, PhD, ABN, or MSU Student Support Services who assist in determining accommodations, encourage communication with instructors regarding accommodations, and provide eligible students with notification letters.

Mentoring and academic/career counseling: Incoming students are assigned a faculty mentor based on their area of interest and may choose additional faculty mentors throughout the program. Mentors counsel students on career opportunities, selection of elective classes and off-site externships, as well as on veterinary ethical and professional issues. The College holds a “career fair” each year where practices and other entities interested in hiring graduating veterinarians and veterinary technologists set up booths in the Wise Center. Career counseling is available online at the Veterinary Medicine Career Center (<https://careers.cvm.msstate.edu/>) and advice related to job placement, employment contracts, and resume preparation is available to all students from the assistant dean for clinical services/hospital director. Academic counseling for at-risk students is required for all Year-1 and Year-2 students. At-risk students include those with an exam grade and/or an average class grade below C in a Year-1 or Year-2 course. These students are notified of their performance by the course leader. The course leader also informs the associate dean for academic affairs who then schedules a mandatory meeting with the student. The student is encouraged to seek advice from the course leader or instructors in the course(s) that he/she is at risk of failing, as well as given guidance for improving academic performance. Students are also advised of assistance available through the MSU Center for Teaching and Learning and/or MSU Student Support Services.

Psychological counseling and wellness services: Dr. Pauline Prince, PhD, ABN, is a full-time licensed psychologist at CVM and coordinates the College’s endowed Maggie Freeman-Bishop Office for Health and Wellness. Dr. Prince supervises a psychology intern, as well as a social work intern. Students are seen by appointment, as walk-ins, and in emergency situations. Dr. Prince also provides regular wellness seminars, participates in orientation of the incoming class and students entering clinics, and provides in-house neuropsychological evaluations to assist in the development of academic accommodation plans that are specific to veterinary medical education. She initiated a “house” system to support a sense of family that MSU CVM values. Additional psychological services include professional development seminars for students, faculty, and staff, and consultation services with faculty and staff. Dr. Prince serves on the CVM Curriculum Implementation Taskforce and ensures that curricular changes support student mental health and physical wellbeing. Since June of 2019, the wellness program has provided new client intakes (148), individual therapy sessions (447), telehealth sessions (70), non-client consults (41), walk-in triage/crisis responses (18), mental health outreach programs (113), training sessions and workshops (32 hours), and student assessments (17).



Tutoring: Tutoring is available through the MSU CVM Peer Tutoring and Assistance Program (PTAP), which connects Year-1 and Year-2 students to peers who can provide academic support. PTAP is free to CVM students and is coordinated by the office of academic affairs. Tutors are peers who have completed the course successfully, are approved by the course leader, and agree to confidentiality. Interns and residents are also encouraged to serve as tutors. Tutoring sessions may be one-on-one and/or group sessions as determined by the Office of Academic Affairs. Tutors are compensated by the CVM for preparatory and tutoring time.

Peer Assistance: The MSU CVM's "Big Sib" program matches Year-2 students with incoming Year-1 students. Big Sibs advise students on housing, recreational activities, classes, electives, and social activities. This relationship typically remains throughout the students' time in the College. The program is overseen by the Big Sib Coordinator (a Year-2 student) and the Office of Academic Affairs. Also, SCAVMA produces the First-Year Survival Guide for all incoming classes. Welcome letters from administrators, information on Year-1 courses and instructors, recreational opportunities, student organizations, community information, and student services are provided in the guide. Year-1 students also receive photographs and biographies of their classmates compiled by the Office of Academic Affairs.

Financial Aid Counseling: Students with questions regarding financial aid are encouraged to contact the MSU Student Financial Aid Office. The College has an array of scholarship opportunities and significant effort is put into encouraging students to apply.

Clubs and Organizations: The MSU CVM Office of Academic Affairs has oversight over the College's 20 student organizations (including one professional fraternity). Each organization has one or more faculty advisors, and officers must maintain a minimum GPA of 2.5. Active student organizations and services provided by the Office of Academic Affairs are listed in Appendix Standard 6.

International Veterinary Experiences: CVM offers college-sponsored study abroad opportunities for students in Uganda and East and Central Africa (Tropical Veterinary Medicine and One Health - CVM 5990). Emphasis is on One Health perspectives and cultural immersion in international animal production, animal health, disease surveillance, control of transboundary diseases, public health systems, and food safety. The college also supports study abroad opportunities with the Food and Agriculture Organization of the United Nations (FAO) and in various countries in association with the CVM-led USAID Feed the Future Innovation Lab for Fish. CVM provides \$40,000 per year to support travel for student participating in these international veterinary experiences.

12.6.3. Provide a list of tuition-related information available for prospective students. This information, as consistent with applicable law, must include estimated total educational cost, cost of living considerations, and a description of financial aid programs. Make collected data on salaries, employment rates, and educational debt available to the public, as consistent with applicable law. Tuition, financial aid, and scholarship information, and data on salaries, employment rates, and educational debt are available to prospective students on the CVM website: [Tuition and Financial Aid | Vet Med \(msstate.edu\)](http://msstate.edu), [Bardsley Scholarship Program | Vet Med \(msstate.edu\)](http://msstate.edu) and [Careers/Practice Building | Vet Med \(msstate.edu\)](http://msstate.edu). Also, a link to the main campus financial aid website is provided and includes cost of living and the total cost of attendance at MSU: <https://www.sfa.msstate.edu/cost/>.

12.6.4. Describe how conflicts of interest regarding academic assessment of students are avoided with individuals who provide student counseling. CVM counselors do not assess or evaluate students in the classroom. The identity of students seeking counselling services is confidential.

12.6.5. Provide a summary of college activities in support of placement of graduates. Current position listings, assistance in resume' preparation, and other resources are available at <http://careers.cvm.msstate.edu/>. Students are exposed to career opportunities in the Professional Development courses. Faculty mentors and the MSU CVM Office of Academic Affairs provide advice on career selection and preparation. A "career fair" is held each year where practices and other entities interested in hiring graduating veterinarians set up booths. The 2020 career fair was conducted virtually.



While on the CVS rotation, all students are required to complete the 13 modules on the web based VetVance® program sponsored by Zoetis. These modules teach important topics such as financial management, personal debt management, and client communication. Year-4 students enrolled in the Veterinary Practice Management elective course create resumes and cover letters and learn about negotiating contracts. Individual consultation and review of contracts is provided to all students by the assistant dean for clinical services/AHC director and faculty advisors. The student chapter of the Veterinary Business Management Association also provides programs on career development and employment opportunities as part of their certificate program.

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

The academic catalog is available at [College of Veterinary Medicine < Mississippi State University \(msstate.edu\)](http://College of Veterinary Medicine < Mississippi State University (msstate.edu))

Year-1/upperclass orientation materials are available on the CVM Intranet at <https://www.vetmed.msstate.edu/about/intranet> and on MyCourses (secure log-in required). Admitted students also receive information from the CVM Office of Academic Affairs regarding policies, important information, and required forms. The orientation program for incoming students includes social and bonding events along with information on professionalism, financial management, strategies for academic success, diversity and inclusion, and CVM policies. Orientation to Phase 2 (clinical rotations) includes an overview of hospital policies, best practices, a review of diversity and inclusion policies, and a presentation by the chief of each clinical service describing student responsibilities and expectations. Students also receive orientation on the first day of each clinical rotation.

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

The COE standards are made available to students via the CVM intranet and email, and students are invited to submit comments. [Accreditation | Vet Med \(msstate.edu\)](http://Accreditation | Vet Med (msstate.edu)) A suggestion box is located at the cafeteria entrance for student feedback related to COE accreditation standards and any other issues. Also, a platform for submitting comments and suggestions anonymously is available on the CVM website and is monitored by the associate dean for academic affairs. The dean meets with Years-1 and Year-2 students at least once each semester to discuss student concerns (“Signals Check”). Class officers meet regularly with the associate dean for academic affairs to provide input into wellness programs, student activities, and policies. All graduating students are invited to meet with the dean and other administrators for “exit interview dinners” to provide feedback regarding curriculum, facilities, and the College environment. Students are also encouraged to schedule individual meetings with the dean.

12.6.8. For student services that the college does not provide directly, described how students have reasonable access to such services from the parent institution or from other sources that are relevant to the specific needs of students, and describe current plans for improvement in resources for students.

Main campus services available to all DVM students include the MSU Career Center, Office of Student Support Services, Disability Resource Center, LGBTQ Resource Center, Office of Financial Aid, Longest Student Health Center, Sanderson Center/University Recreation (athletics and wellness), Food and Clothing Bank, Autism Liaison Services, Student Counseling Services, Student Account Services, Office of Parking and Transit, TRIO Program (first generation/low income students), The Learning Center, Center for American Veterans, and The Writing Center. Information on each of these services is readily accessible on the MSU website and is provided to incoming veterinary students during orientation.



STANDARD 7: ADMISSIONS





STANDARD 7. ADMISSIONS

12.7.1. State the minimum requirements for admission.

Minimum requirements for admission are listed on the [MSU CVM website: Application & Requirements | Vet Med \(msstate.edu\)](#). A minimum overall GPA of 3.0 on a 4.0 scale is required for admission. This minimum GPA must be maintained throughout the application process. At the time of application, no grade lower than a C- is acceptable in any required course. Remediated and repeated courses must be completed before the application is submitted. Courses that must be completed successfully before matriculation are listed in Appendix Standard 7.

Standardized examinations: The Graduate Record Exam (GRE®) General Test is not required and not used in the admissions process. A Test of English as a Foreign Language (TOEFL®) score or International English Language Testing System (IELTS) score is required for applicants whose primary language is not English. A minimum TOEFL score of 79 iBT or an IELTS score of 6.5 is required to be considered for admission.

All applicants must apply through the Veterinary Medical College Application Service (VMCAS) except for students applying through cooperative agreement programs. A supplemental application fee must be submitted directly to the College by the VMCAS deadline.

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

Recruitment: The MSU CVM Recruitment Team is comprised of ten faculty members who meet with prospective students and liaise with students and veterinary associations/faculty advisors in specific geographic regions and in specific colleges and universities to answer questions about the College and provide information on the application process. All members of the recruitment team have completed diversity training (Purdue Veterinary Diversity Certification Program). The team is supported by staff in the Office of Academic Affairs.

Diversity efforts include cooperative agreement programs with Pontifical Catholic University of Puerto Rico, University of Puerto Rico-Mayaguez, and Tougaloo College (an HBCU located in Mississippi). The cooperative agreement with these institutions provides an opportunity for pre-veterinary students (up to two per year per institution) to gain pre-selected admission into the DVM program based on requirements set forth by the CVM admissions committee and the institution's selection committee. Undergraduate students apply for the cooperative program through their institution during their sophomore year. Admission into the cooperative program does not guarantee admission to the DVM program. Admission to the College is based on final approval by the MSU CVM Admissions Committee and meeting the minimum requirements of the DVM program. The College also offers various outreach programs that target students (elementary school to college) from underrepresented populations.

Selection: Upon receipt of the completed VMCAS application, supplemental application, and application fee, staff in the MSU CVM Office of Academic Affairs verify that the applicant has met the minimum academic requirements. Applications meeting the minimum requirements are then processed and evaluated by the staff in the MSU CVM Office of Academic Affairs for the calculated prerequisite and overall GPAs and academic attributes which the admissions committee believes impact an applicant's academic performance. These attributes include course load rigor, prerequisite completion, trend in grades, withdrawal/repeated courses, prerequisites outside of primary institution, additional upper-level sciences, first-generation student, full/part time employment, honors/graduate coursework, non-traditional student, and student athlete. Applications are then sent to the MSU CVM Admissions Committee for review. The academic attributes are reviewed for any discrepancies followed by evaluation for non-academic criteria and application attributes including leadership, employment outside veterinary medicine, and awards and achievements. The following 100-point scale is used to aid in the selection process.



The following 100-point scale is used to aid in the selection process.

	Points	Description
Academic Evaluation	30	Overall GPA (9 points), GPA in prerequisite courses (21 points)
Non-academic Evaluation	30	Essays (personal statement, supplemental application essay*, explanation statement- 6 points), animal experience (6 points), veterinary experience (6 points), research experience (3 points), extracurricular activities (3 points), community service (3 points), letters of recommendation (3 points) *The admissions committee reviews the supplemental essays as a part of the non-academic evaluation to gain additional insight into the applicant’s values and life experiences. This insight provides a more holistic assessment of the applicant and aids in the selection of a diverse student body. Supplemental essay questions include: 1. MSU CVM is dedicated to creating an inclusive teaching, learning, and working environment where people's ideas, culture, ethnicity, gender, gender identity, sexual orientation, and beliefs are accepted, appreciated, and respected. How would you contribute to this effort as a potential student and alumnus? (1000-character limit). 2. MSU CVM recognizes there may be circumstances in a person’s life which affected their ability to achieve academic and career goals. These disadvantaged circumstances could be one or a combination of economic, educational, and/or environmental factors. If you believe you have had to overcome disadvantaged circumstances, please provide a statement to describe the circumstance(s). (3000-character limit).
Interview Evaluation	30	Score provided by the interview team
Overall Committee Evaluation	10	Combination of scores provided by the Office of Academic Affairs (academic attributes) and admissions committee (academic and application attributes) and information gained during the interview (interview attributes).

MSU CVM Director of Admissions Dr. Brittany Moore-Henderson chairs the MSU CVM Admissions Committee. Fourteen CVM faculty members make up the committee. Ten committee members are elected by the three academic departments and the remaining four are appointed by the director of admissions. Each member serves a three-year term and is eligible for reelection or reappointment to a second consecutive term. All members of the admissions committee must complete diversity training (Purdue Veterinary Diversity Certification Program). All members of the committee attend orientation and training before the admissions cycle begins in July. The committee establishes the weight of evaluation criteria, rubrics, and evaluation methods. Every effort is made to standardize the process for all applicants. Diversity of applicants is a consideration during all stages of the admissions process.

Each application that meets academic qualifications is reviewed by a two members of the admissions committee and evaluated according to the rubric listed above. If the scores given by the two committee members differ by more than five points the application is discussed at the admission committee’s bimonthly meeting. The full committee may agree with or amend the assessments. The committee’s evaluation scores guide the selection of candidates to be invited to interview at the College, and the final decisions are based on the committee’s review and discussion of each applicant’s strengths and weaknesses.

Selected applicants are then invited for personal interviews at the College. Interviewees are placed in one of four pools: Mississippi residents, South Carolina residents, West Virginia residents, or at-large. Interviews are preceded by a reception for interviewees and those accompanying them. An orientation session covering the College’s costs of attendance, financial aid information, professional and graduate programs, policies and procedures, clinical education, and the interview process is presented on the morning of interview day. For applicants for the class admitted in 2021, the interviews, reception, and orientation were held virtually because of restrictions from the COVID-19 pandemic.

The director of admissions conducts an in-depth training session for all interviewers (including instruction on confidentiality, implicit bias, and diversity) each morning before that day’s interviews. The



thirty-minute interviews are conducted by three-person teams composed of one member of the admissions committee, one college faculty member, and one private or public veterinary practitioner. Only the admissions committee member has the interviewee's entire file. The other interviewers are provided with a list of "do not ask" questions and suggested interview questions. The interviews assess professionalism, behavioral characteristics, diversity, knowledge of the veterinary profession, and important issues facing the profession. Each interviewer independently evaluates the applicants, and the interview scores are averaged. The average interview score is then combined with the applicants' academic and non-academic scores.

Following the completion of all interviews, the admissions committee meets to discuss information learned about the applicants during the interview that was not noted in their applications. The committee as a whole then determines if a candidate should be given additional points for interview attributes. The admissions committee then assigns applicants from the four pools into one of the following categories: invited, alternate, or denied admission.

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

Non-academic criteria are also considered in admissions process and assessed through the applicant's personal statement, submitted essays, letters of recommendation, listed experiences, and answers provided during the interview. These include employment outside veterinary medicine, leadership, awards, honors, and achievements. The ideal candidate has a balance of the following qualifications: understanding of the breadth of veterinary medicine, professional issues, and ethics of veterinary medicine; communication skills; personal responsibility and commitment; orientation towards service; motivation and self-determination; problem solving skills; financial understanding of cost of education and the veterinary profession; interpersonal skills and teamwork; leadership; time management; and stress management.

12.7.4. Complete Table A.

Table A provided in Appendix Standard 7

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

With the current selection process, our absolute attrition rate is relatively low and success on the NAVLE examination is high. The admissions committee meets before and after each application cycle to discuss criteria, weighting of criteria, and rubrics that will be used to evaluate applicants. The committee receives feedback from Year-1 and Year-2 students (preclinical education) and Year-3 and Year-4 students (clinical education). This feedback, together with comments from employers, peers, and internship/residency supervisors, aids in identifying traits that the committee considers during the review of files and interviews.

The director of admissions prepares reports at the end of each semester comparing CVM students' GPAs with their GPAs at the time of acceptance. These reports are shared with the admissions committee, aid in weighting GPA used in the academic evaluation, and help in identifying undergraduate subjects beneficial to DVM students.

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.

The college will accept qualified transfer students to fill vacancies in Year-1 or Year-2 on a case-by-case basis. Transfer guidelines are as follows:

- Applicants for transfer into the second semester of Year-1 must have completed coursework equivalent to coursework taught in the first semester of Year-1 at MSU-CVM.
- Applicants for transfer into the first semester of Year-2 must have completed coursework equivalent to coursework taught in Year-1 at MSU-CVM.
- Applicants for transfer into the second semester of Year-2 must have completed coursework equivalent to all coursework taught in the first three semesters at MSU-CVM and must have completed equivalent surgery laboratories.

General:

- Applicants considered for transfer admission must be in good academic standing (defined as being eligible to continue at current college from current point in the curriculum), never have failed a course while in veterinary medical college and have never been dismissed from a veterinary college.
- Applicants considered for transfer admission will be required to complete an interview with members of the



MSU CVM Admissions Committee via Skype®, videoconference, or teleconference.

- Typically, transfer applicants are not accepted into the program at a point later than first semester of Year-2. Accordingly, if a student pursues application to MSU CVM and is accepted, it is necessary for that student to complete at least two years at MSU CVM to be eligible for a degree from MSU.
- To apply for admission as a transfer student to MSU CVM, an applicant must submit a completed application ([Transfer application enhanced \(msstate.edu\)](https://msstate.edu))

Upon receipt of this material, college personnel perform an analysis of the records, determine eligibility for transfer, and, if applicable, the appropriate entry point into the curriculum. Interviews of all competitive applicants are conducted by members of the CVM Admissions Committee before acceptance is granted into the program and are conducted only when an opening exists.

The College plans to discontinue clinical training contracts for St. George’s and St. Matthew’s universities before our expanded class (112 students) begins its clinical training in 2023.

Number of transfer students admitted during the last five years.

Academic Year	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Number of transfer students	2	4	0	0	0







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.

Tables A and B are provided in Appendix Standard 8.

Current faculty and staff numbers are adequate to fulfill the College's teaching, service, and research missions. Among the College's strengths is its dedicated, productive, and collegial faculty and staff with a strong record of curricular development and delivery. Most of the teaching faculty in Phase I (Year-1 and Year-2) are veterinarians with an understanding of the profession and the needs of the students. The faculty teaching in Phase 2 (Year-3 and Year-4) are also veterinarians and the majority are board-certified in their specialty. Staff members involved in student education are primarily certified veterinary technicians and support staff with advanced training and expertise in education.

The College currently does not have a cardiologist on faculty; however, CVM is providing financial support for an individual to complete a cardiology residency at Washington State University who will then join the faculty beginning in July 2023.

Support staff numbers are adequate to fulfill their component of the College's mission.

A list of all CVM faculty members, their rank, and their teaching role is included in Appendix Standard 8.

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

Tables C, D are provided in the Appendix Standard 8.

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

As with other colleges of veterinary medicine, the MSU CVM competes with salaries offered in industry and private practice when recruiting and retaining faculty. To address this issue, the College has improved faculty salaries so that they are equivalent to those of peers in colleges in contiguous states. MSU CVM salaries also compare favorably with national averages in academic institutions; however, they are lower than those paid to comparable persons in industry (e.g., poultry and pharmaceutical companies) and private specialty practice. MSU CVM is not in a large metropolitan area. When recruiting, the College is challenged by the need to place faculty spouses/significant others in positions at the University or in the local community.

In addition to improving salaries, the College has utilized creative hiring strategies to aid in faculty recruitment and retention. One such strategy is to offer year-long, clinical instructor positions to the most talented residents as means of attracting them to academic medicine. This position provides them with experience in academia while studying for their board examinations. The College has also established two endowed chairs (small animal internal medicine and shelter medicine), three endowed professorships (equine medicine, beef cattle health and reproduction, and feline medicine), and one faculty fellow position (internal medicine). These positions have attracted productive faculty members and helped attract and retain other talented faculty building valuable programs. Examples include small animal internal medicine, shelter medicine, and epidemiology/infectious disease.

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

Table A is provided in the Appendix Standard 8.

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

Faculty members are evaluated for promotion and tenure according to specific guidelines described in Departmental, College, and University Promotion and Tenure documents. [Microsoft Word - P&T CVM April 2015 final approved.doc \(msstate.edu\)](#)

Non-tenure track faculty have all the rights, including serving as administrators, of tenure track faculty except they cannot participate in tenure decisions. Non-tenure track faculty are evaluated for promotion according to the College's "Promotion Guidelines for Non-tenure Track Faculty." [Promotion Guidelines for Non-Tenure Track Faculty \(msstate.edu\)](#) The promotion process for non-tenure track faculty is parallel to that of tenure track faculty. Promotion applications for non-tenure track faculty are reviewed by the department head and a college committee consisting of non-tenure track faculty members before being submitted to the dean for his evaluation. The final decision regarding promotion of non-tenure track faculty is the university president following a supportive recommendation by the vice president of DAFVM. MSU CVM average salary



levels for non-tenure track faculty are equal or greater by rank than those of corresponding tenure track faculty.

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

Each faculty member receives an annual performance evaluation based on his or her individual FTE assignment in teaching, service, and research/scholarship. MSU policy requires that department heads inform faculty, in writing, of their progress toward promotion and tenure during every annual evaluation. All tenure track faculty members also receive a comprehensive, mid-tenure review during their third year of employment. For tenure track and non-tenure track faculty, decisions made relative to performance compensation and promotion/tenure are made with consideration given to the individual's FTE assignments.

From 2014 through 2021, 44 CVM faculty members applied for promotion or promotion with tenure (11 to full professor, 12 to associate professor with tenure, four to clinical professor, 15 to associate clinical professor, one to research professor, and one to research associate professor). All were approved except one tenured faculty member whose application for promotion from associate professor to professor was not successful.

12.8.7. Briefly describe faculty professional development opportunities available in the college/university, including but not limited to learning theory and instructional practices.

Numerous seminars are provided by the College and University. These include monthly departmental research seminars provided by graduate students and invited guest speakers and monthly morbidity/mortality rounds. The College also sponsors bimonthly management team training sessions for supervisory staff and faculty with pertinent topics presented by the MSU Human Resources Management office. Funding has been provided for all members of the recruitment team and the admissions committee to complete the Purdue Diversity Training Certification program.

The College provides travel funds for faculty to attend conferences and professional development courses. A portion of these funds is derived from income provided through administration of the ECFVG Examination.

The MSU Center for Teaching and Learning provides numerous workshops, seminars, lunch-and-learns, and individual consultation sessions for faculty interested in improving their teaching efforts (<http://www.ctl.msstate.edu/>).

The MSU Provost's Office provides a year-long leadership training course for interested faculty, and several CVM faculty members have completed this training. Since the COE site visit in 2014, nine members of the CVM faculty (seven women and two men) have completed the AAVMC Leadership Academy. Six of these faculty are currently in leadership positions at the College.

A comprehensive grant writer's seminar and workshop is provided semi-annually, and many CVM faculty members have participated. The Office of the CVM Associate Dean for Research and Graduate Studies manages a program for internal peer-review of research grants that is available to all faculty, and a competitive internal grant program which provides seed funding for research projects.

Faculty mentoring programs are available in all three CVM departments and from the MSU Faculty Mentoring Program. Mentoring is also provided by the CVM department heads. The mentoring process promotes faculty success, guides them through the promotion/tenure process, and encourages the development of future academic leaders.

12.8.8. Describe the college's processes to annually monitor equity in compensation and advancement.

Faculty salaries are reviewed annually by the College's department heads and the dean. The review coincides with the required annual performance appraisal. CVM adheres to MSU guidelines regarding salary adjustments, and when approved, salary considerations include merit, equity (gender, racial, and ethnic equality), and compression among faculty ranks. When necessary, mid-year salary adjustments can be approved to retain faculty.

Faculty advancement is also addressed during the annual performance appraisal and is managed in compliance with the "MSU Promotion and Tenure Guidelines," the "CVM Promotion and Tenure Guidelines," the individual department's promotion and tenure guidelines, and the "Promotion Guidelines for Non-Tenure Track Faculty in the College of Veterinary Medicine."

Non-tenure track faculty are eligible to serve in all administrative positions at CVM.



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

One of the major benefits of the CVM budgeting system (CVM has its own appropriated budget and receives all DVM tuition) is that the College has great flexibility in internally allocating funds from all sources when creating faculty positions (with approval of the provost), so resources are moved as needed to ensure curricular continuity when faculty members retire or leave.

Faculty numbers are currently adequate to manage the increased number of students entering the clinical rotations, and the addition of ECPs into the curriculum further strengthens the strong clinical education already provided in the teaching hospital and clinics. The paucity of radiologists in academia raises potential concerns about adequate staffing in the diagnostic imaging service should a faculty member leave, but CVM has implemented measures to proactively address this issue. A current radiology resident will be joining the diagnostic imaging service upon completion of his training program, and the College contracts with a private imaging service (VetCT) to provide image interpretation and support resident training. The other clinical service potentially impacted would be oncology. However, the internal medicine faculty can effectively manage oncology cases should the need arise. For other aspects of the curriculum, sufficient redundancy exists to maintain course continuity and effectiveness if an individual faculty member were to leave.

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

The College's hiring process includes collaboration with the MSU Office of Institutional Diversity and Inclusion (<http://www.oidi.msstate.edu/>). This office provides search committees with tools to reach a more diverse audience during the recruitment process, including a "Diversity Recruitment Marketing Best Practices Checklist." Hiring decisions are evaluated by MSU Human Resources Management to ensure compliance with MSU diversity in hiring guidelines. The College also promotes and encourages leadership training for faculty and staff from underrepresented groups. The MSU CVM Diversity and Inclusion Committee is advisory to the dean's cabinet and promotes College initiatives to enhance diversity. A priority listed in the College's current strategic plan is the promotion of "an inclusive institutional climate that fosters diversity with the student body, faculty, and staff." Also, the College pays the registration costs for members of the admissions committee, diversity and inclusion committee, and recruiting team to attend the Diversity Matters Symposium. Increasing diversity among our faculty remains a priority and warrants continued effort.

Currently, 51% of all CVM faculty, six of 13 Cabinet members, and eight of 16 service chiefs are female. Of faculty hired at CVM from 2014 through June 2021, 67% were female and 17% were underrepresented minorities.

12.8.11. 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.

None of MSU CVM's core curriculum is taught by part-time instructors.

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

House officers and graduate students under direct supervision of faculty course leaders participate in the curriculum, including laboratories. Most didactic lectures are provided by faculty members, although house officers and graduate students may provide occasional lectures to gain experience in the classroom. In AHC clinical rotations, interns and residents often work closely with students in patient care under faculty supervision and are expected to contribute to the clinical training of veterinary students. For both didactic and clinical courses, faculty members are responsible for grading students. Interns, residents, and graduate students often contribute to the grading process, although their input is given less weight than is faculty input. House officers receive instruction on grading students during their orientation (from a faculty member in the MSU College of Education) and from their faculty mentors. House officers also receive communication training as part of the house officer seminar series.



STANDARD 9: CURRICULUM





STANDARD 9. CURRICULUM

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

The overall objectives of the curriculum are to create an educational environment which cultivates core competencies permitting students to do the following:

- Acquire the knowledge necessary to distinguish normal from abnormal states of health in a variety of species.
- Acquire a basic and applied knowledge base that integrates information from all relevant disciplines and apply appropriate interventions to address medical problems.
- Develop or enhance the interpersonal, oral, and written communication skills necessary to work well with others and communicate effectively with diverse populations and clientele.
- Understand and refine behaviors that are always respectful and professional in accordance with the principles of veterinary medical ethics.
- Acquire lifelong skills, behaviors, and attitudes to seek the appropriate resources and information needed to effectively resolve problems when confronted with a problem outside their immediate knowledge base.
- Acquire the technical, diagnostic, and analytical skills necessary to be well-prepared for entry-level practice.
- Become successful professionals in diverse careers in veterinary medicine.

The curriculum is managed by the CVM Curriculum Committee and Associate Dean for Academic Affairs Dr. Jack Smith. Three faculty members assist in curricular management as co-directors of clinical education and report to the associate dean for academic affairs. Their primary roles include externship oversight (Dr. Heath King, associate clinical professor), implementation of curricular changes (Dr. John Thomason, associate professor), and outcomes assessment (Dr. Christine Bryan, associate clinical professor).

The CVM curriculum integrates didactic study of basic biological principles and mechanisms that occur during health and disease with clinical and experiential learning demonstrating these processes. The College's approach is based on a two-phase curriculum, which promotes an understanding of health and disease in multiple species and allows individual students to focus on developing additional expertise in self-selected disciplines. Year-1 and Year-2 (Phase 1) of the curriculum consist entirely of twenty-nine core courses. Year-3 consists primarily of core courses (eight clinical rotations, 39 credits) with the option to enroll in a maximum of six credit hours of elective courses. Year-4 consists of six core clinical rotations (19 credits) with opportunities to enroll in 27-33 credit hours of elective courses. Each of the nine AVMA-COE core competencies are woven into and assessed throughout the curriculum.

Phase 1

The fall semesters of both Year-1 and Year-2 are longer than traditional semesters. The fall semester in Year-1 is comprised of 24 weeks, and the fall semester in Year-2 consists of 21 weeks. There are 29 core courses comprising 90 credit hours in Phase 1. To ensure that pre-clinical course work is covered adequately and presented in a logical and organized manner, some courses are presented in a block fashion that span half the semester. For example, one course in each semester starts at the beginning of the semester and ends mid-semester, then a second course begins mid-semester. These courses are identified numerically in the curriculum digest as (1) and (2).

The delivery of Phase 1 is primarily through lecture and laboratory sessions, including surgery laboratories (spay/neuter on shelter dogs), which are introduced in Year-2. In Year-1, students acquire the knowledge to distinguish normal from abnormal by learning basic sciences in courses such as anatomy, physiology, infectious agents, as well as introductory therapeutics and pathology. The content in Year-2 builds on these basics by exploring disease conditions of specific animal species, thereby challenging the student to resolve the case with expanded diagnostics, management, and therapeutics. The courses in Year-1 and Year-2 enable students to acquire basic knowledge and comprehension of health and disease states and appropriate interventions. In addition to the foundation in biological principles, Phase 1 also includes professional development courses that introduce students to alternative careers and important issues necessary for success in the curriculum and in the profession, such as diversity and inclusion, implicit bias, jurisprudence, personal time management and wellness, and financial management of personal



resources and student loan debt. One course, Professional Development III, provides an overview of the role of One Health in the global environment, emphasizing cultural competencies and the role of animal agriculture in international development, conservation, and disease control and prevention.

Phase 2

The final two years of the curriculum are comprised of core clinical experiences in 14 required rotations in the AHC, the diagnostic laboratories, the ambulatory practice, and satellite clinics, as well as extensive elective options beyond the core rotations. In all core rotations, students develop or enhance the interpersonal, oral, and written communication skills necessary to work well with others and communicate effectively. It is also during Phase 2 that students refine behaviors that are in accordance with the principles of veterinary medical professionalism and ethics. During Phase 2, students acquire the technical, diagnostic, and analytical skills necessary to be well-prepared for entry-level practice. The two years of clinical training, together with most rotations being four to six weeks in length, enable extensive use of topic rounds that reinforce learning material with actual cases. Required rotations focus on the acquisition of skills and understanding of syndromes and diseases that must be mastered during the rotation. In Year-3, students participate in the following eight required clinical rotations earning 39 credit hours: Population Medicine (three weeks), Laboratory Services, which includes clinical pathology and anatomic pathology, (four weeks), Diagnostic Imaging (four weeks), Anesthesiology (four weeks), Community Veterinary Services (six weeks), Small Animal Surgery (six weeks), Equine Medicine and Surgery (six weeks), and Food Animal Practice (six weeks).

Students must complete all Year-3 required rotations before enrolling in Year-4 rotations or externship experiences. In Year-4, students enroll in six required rotations for 19 credit hours: Ambulatory/Large Animal Primary Care (two weeks), AERC (two weeks), Clinicopathologic Conference (one week), Small Animal Emergency and Critical Care Medicine (four weeks), Small Animal Internal Medicine (6 weeks), and Veterinary Specialty Center Rotation, which includes neurology, ophthalmology, and radiation oncology (four weeks). This permits a minimum of 27 credits of elective experiences during Year-4.

Included in the elective rotations are options for externships, in private or institutional veterinary practices, MSU and non-MSU advanced clinical rotations, directed individual study (research or non-research based), and small-group or laboratory-based courses. The elective opportunities during Year-4 enable students to prepare for successful careers in clinical practice as well as a variety of other areas.

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

A curriculum visioning task force (comprised of 17 faculty members) began a comprehensive curricular review in 2017. Following the review, a faculty-led curriculum implementation task force (which included the College's clinical psychologist) was formed and began working with the College's curriculum committee to incorporate changes. Changes in the first two years of the curriculum were initiated in academic year 2019-2020 and were completed in fall semester 2020. The recommended changes for the clinical phase (third and fourth years of the curriculum) have been approved by the CVM curriculum committee and cabinet and will be fully in place by May 2023.

Changes in the professional clinical curriculum since the last site visit include:

- In 2015, a two-hour presentation on financial literacy was added to the orientation for all Year-1 students. It addresses the implications of student debt and provides strategies for students to mitigate the effects of this debt while still in school.
- In 2016, the population medicine clinical rotation was added to increase student learning of principles of epidemiology and enhance problem-solving skills. It is a three-week core clinical rotation for Year-3 students. Students on this rotation conduct epidemiological assessments of diseases occurring in herds and flocks and at animal shelters and learn about disease prevention and control. In 2023, the length of this rotation will increase to 4 weeks and include the week of shelter medicine visits currently completed in CVS.
- In 2016, the Clinicopathologic Conference Course was reduced from two credits to one credit, which now allows an additional week of elective experience in Year-4.
- In 2016, a new scheduling process was instituted for Year-3 rotations which permits students to have more frequent short breaks in their 3rd year schedule rather than a single extended break. Students report that the frequent breaks enable better management of the stresses associated with Year-3.



- In 2019, students in the Year-3 pathology rotation began spending two days with faculty at the IMMS conducting necropsies and physical examinations on dolphins and endangered sea turtles and learning about marine ecology and conservation.
- Beginning in Fall of 2019 all Year-4 students were automatically enrolled in Shelter Medicine Spay & Neuter elective but were allowed to opt out if desired. The current spay and neuter elective will become a required rotation by 2023. This rotation provides students with significant experience with physical examinations, common clinical diseases, small animal anesthesia, and surgery.
- In 2020, Enhanced Clinical Practicums (ECPs) were developed. They are currently elective but will become core rotations for students in the class of 2025 in their third and fourth years (i.e., beginning in May 2023). ECPs will be core distributed experiences consisting of eight weeks of clinical education (two four-week rotations), conducted in select private practices. Veterinarians in these practices will undergo appropriate training and the practices will be carefully monitored to assure compliance with COE accreditation standards.
- In academic year 2019-2020, as a result of the previous curriculum review, several courses (Equine Med/Surg 1&2, Theriogenology, Food Animal Med/Surg and Preventive Medicine) in Phase 1 reorganized lecture content and reduced total lecture hours. This enabled a schedule change and provided students with an afternoon off each week while continuing to meet the course objectives. Learning outcomes in these courses continue to be evaluated.

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 MSU CVM Curriculum Committee meets monthly to review curricular issues, proposed modifications to existing courses, and possible new course offerings. They also consider agenda items brought forth by committee members and other faculty and students; review course syllabi; and review course, instructor, and rotation evaluations submitted by students and comments received from Year-4 students during exit interviews conducted just before graduation. The associate dean for academic affairs and the co-directors of clinical education may attend these meetings. Students have the opportunity to evaluate every course and every instructor at the completion of the course/rotation. The curriculum committee makes recommendations to the department heads, the College's administration (dean's cabinet), and dean for their consideration. Recommendations that result in a significant change, depending on the extent of modification, may require approval of the MSU University Committee on Courses and Curriculum. Minutes from curriculum committee meetings are available to all faculty on the CVM intranet. [Intranet | Vet Med \(msstate.edu\)](#)

A two-step comprehensive internal review of the curriculum was initiated in 2017. Step one was conducted by a curriculum visioning task force chaired by the associate dean for academic affairs and comprised of 16 additional faculty members representing all three college departments. This task force worked with the CVM curriculum committee to review the existing curriculum and identify areas for potential improvement, as well as promote the mental health needs of veterinary students. The task force submitted its recommendations to the general faculty and the dean's cabinet in July 2018. Step two was conducted by a faculty-led curriculum implementation task force chaired by Dr. John Thomason, small animal internist and co-director of clinical education, and comprised of eight faculty members plus the CVM clinical psychologist. This group was charged with coordinating with the CVM curriculum committee to efficiently implement the recommended changes. Following these steps, the CVM curriculum committee approved suggested changes for the Phase 2 curriculum in May 2021.

Redundancy/Overlap/Omissions: During the curricular review process, the MSU CVM Curriculum Committee and the curriculum visioning task force identified redundancy, overlap and omissions by reviewing the curriculum map, course syllabi, student course evaluations and exit interviews, student performance on NAVLE, and employer surveys. The curriculum committee concluded that coordination among course leaders has prevented or corrected areas of redundancy in the Phase I curriculum, and that the degree of overlap existing in Phase 2 is desirable and beneficial to students.

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

Strengths:

- The two-phase curriculum (two years preclinical and two years clinical) provides students with extensive hands-on experiences to improve their clinical skills.



- The College's shelter medicine program provides numerous opportunities for students to develop physical examination, anesthesia, and surgery skills by performing elective castrations and spays.
- The curriculum offers extensive flexibility for students to explore unique career opportunities and interests before graduation.
- Postponing elective course work until Year-3 and Year-4 of the curriculum gives students the opportunity to make informed decisions regarding their careers and which elective courses and learning experiences will most benefit them.
- Extensive use of topic rounds during clinical rotations augments the didactic curriculum.
- The College boasts a long history of successful placement of graduates into internship and residency training programs.
- The curriculum provides students with opportunities to initiate graduate work while concurrently completing the professional DVM curriculum.
- The new enhanced clinical practicums program will augment clinical learning achieved in the teaching hospital, satellite clinics, and ambulatory clinic.
- Robust caseload - distributed over two years in several venues provides students ample opportunity to improve their skills in a variety of environments and types of practice.
- Direct and indirect measures of outcomes assessment, including threshold events, threshold performances, and "CPE-like" competency examinations in clinical rotations, document clinical competencies and ensure that graduates are prepared for entry-level practice at the time of graduation.
- Students participate in mini-clinical evaluation exercises (CEX) in multiple clinical rotations where they receive immediate, direct feedback.
- Three co-directors of clinical education assist the associate dean for academic affairs and provide additional input to the curriculum committee.

Weaknesses:

- The preclinical curriculum is appropriately challenging. The time required to maintain rigor in the preclinical curriculum was accommodated by increasing the length of fall semesters and improving the sequencing of courses. The CVM recognizes that the fall semesters of Year-1 and Year-2 are longer than traditional semesters. For approximately 10 years the CVM scheduled one afternoon off per week for Year-1 students. After assessment during the recent curricular review process, and with input from the CVM clinical psychologist, course scheduling was changed in academic year 2019-2020 to also enable scheduling one afternoon per week off for Year-2 students to attend to their self-care and wellness needs.
- A limited caseload of exotic and wildlife species in the teaching hospital requires innovation to identify opportunities for students to gain exposure in this discipline. In addition to the exotic animal handling labs in the Community Veterinary Services rotation, the College has fostered relationships with Cedarhill Sanctuary and the Institute for Marine Mammal Studies. Students may choose to utilize some of their 27 weeks of elective experiences in Year-4 to participate in externships in private practices, zoos, or other CVMs for additional exotic/wildlife experiences.

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

All students are permitted to participate in up to 12 weeks of supervised externship experiences following Year-3. Students can petition the co-director of clinical education for additional weeks provided the experience will involve time at another veterinary teaching hospital or referral specialty practice and is deemed to be a valuable learning experience. Externships are only permitted for students who have successfully completed all Year-3 core rotations and are in good academic standing. Before a student can schedule an externship, the site must be approved by the co-director of clinical education to ensure the practice or facility meets certain minimal standards. Once externship practices and other off-campus learning experiences are approved, pertinent data for the practice sites is entered into a computer database that is accessible by students searching for potential externship sites. Students schedule all Year-4 electives with the advice and ultimate approval of their faculty advisor, whom they have previously selected. These faculty advisors provide mentorship and advice on selecting quality learning experiences that best suit the individual student and their career goals.

Student performance in externships is graded satisfactory/unsatisfactory. See explanation of externship evaluations in 11.1.a and in Appendix Standard 11.



9.6. Curriculum Digest

The CVM Curriculum Digest is available at <https://www.vetmed.msstate.edu/academics/graduate-education/dvm-program/class-selection/dvm-curriculum> and a hard copy will be available at the site visit.

9.7. Describe current plans for curricular revisions.

Several changes to the core curriculum for Year-3 and Year-4 students will begin when the class of 2025 starts Phase 2 clinical training in May 2023.

- Enhanced clinical practicums (which are currently being piloted as an elective) will become core clinical rotations for students in Phase 2. These will comprise two, four-week off-site mentored clinical experiences; one of which will be in a mixed animal practice.
- Shelter medicine elective (two weeks) will become a core rotation in Year-4.
- Neurology will expand from two weeks to four weeks in Year-4.
- Year-3 clinical rotations currently lasting six weeks will be shortened to four weeks (small animal surgery, food animal medicine and surgery, equine medicine and surgery, community veterinary service).
- A Year-4 clinical rotation currently lasting six weeks will be shortened to four weeks (small animal internal medicine).
- A Year-3 large animal ICU rotation (four weeks) will be added. The large animal 12-week in-hospital block will consist of four weeks of food animal medicine and surgery, four weeks of equine medicine and surgery, and four weeks of large animal ICU.
- A small animal specialty service rotation (four weeks) including dermatology, oncology, and ophthalmology will be added.
- Cardiology will become part of small animal internal medicine.
- Community veterinary services, currently six weeks, will be shortened to four weeks by moving a week of shelter medicine to the population medicine rotation and a week of dermatology to the small animal specialty service rotation.
- Oncology will be moved out of the small animal internal medicine rotation and will become part of the small animal specialty service rotation.
- The shelter medicine investigative visits to animal shelters, currently part of CVS, will become a fourth week in the current population medicine rotation (which is currently a three-week rotation).

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

Methods of evaluation to determine final grades include an “A-F” grading scale in all four years of the curriculum, including clinical rotations with the exception of Pass/Fail grading in the AERC rotation. Externships are graded as “Satisfactory” or “Unsatisfactory” and, therefore, do not contribute to students’ GPAs. The College uses many assessment types across didactic courses in Phase 1, which are typically composed of MCQ, matching, true/false and essay questions. Didactic courses in Phase 1 typically have one examination per credit hour and a final examination of which 20-25% of the exam is cumulative.

In clinical rotations, both direct and indirect assessments, including a reliance on “threshold events” and “threshold performances” are used to evaluate the clinical competency of students across the nine COE competencies. A threshold event is a basic clinical skill or knowledge assessment that an entry level veterinarian would be expected to know. Threshold performance is the minimal score a student must achieve to demonstrate clinical competency (CC) in a basic skill or knowledge assessment. This is further described in-depth under Outcomes Assessment 11.1.a.

In all clinical rotations, students are provided formative mid-block evaluations and end-of-rotation summative evaluations, except in the two-week large animal ambulatory rotation and two-week AERC rotation where no mid-block evaluations are given.

Exam Content

Exam content in Year-1 and Year-2 is linked to the learning objectives provided for each course. Almost all exams in Phase 1 are administered via electronic means within ExamSoft® testing software. Each exam question is used as an assessment method to evaluate student mastery of the courses’ learning objectives. The same information can be used to determine if modifications in learning objectives are needed to reflect more accurately what is being taught in a course. For example, if over a span of three to four years



students have not been examined over a learning objective, modifications may be needed in either exam content or in the learning objectives for the course.

Course leaders, the associate dean for academic affairs, and the academic standards and professional ethics committee have responsibilities in the process for upholding the academic standards for students as outlined in the MSU CVM Academic Affairs Policies and Procedures Manual [Policies | Vet Med \(msstate.edu\)](#). All allegations of Honor Code violations are managed centrally by the University Honor Code Office, whose policies and procedures can be found at: [Forms and Resources | Honor Code \(msstate.edu\)](#)

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

Recognizing and embracing the rich cultural diversity of the MSU campus and surrounding area have been, and continue to be, a source of pride for faculty and students. Students can interact with virtually every population demographic without leaving the campus. In addition, there is currently a university mandate in the strategic plans for both the University and the College to increase the visibility of and engage the University globally. The CVM is active in this effort.

Throughout the curriculum, students gain exposure to cultural diversity in lectures and interactions provided by international faculty, residents, and graduate students. For example, in Year-1 of the curriculum, guest lecturers in the professional development course discuss the basic principles of cultural competency and cultural, educational, and religious influences on veterinarian and client interactions as well as the delivery of veterinary care. In Professional Development III, students are introduced to the role of the veterinarian in One Health from a global perspective and through legal, political, social, economic, technologic, cultural, religious, and ethical frameworks. An associate provost speaks to Year-1 students during the first few days of class about university resources related to disabilities and ensures that students know where to find and access appropriate accommodations. Domestic cultural differences are encountered when Year-3 students on the CVS rotation provide medical care to pets of women entering regional domestic violence shelters and meet with the pet owner at the time of discharge, through the Safe Haven Program ([Safe Haven for Pets | Vet Med \(msstate.edu\)](#)).

A number of our students also gain exposure to cultural diversity through their participation in our CVM Veterinary Camp program, the annual CVM Open House, and VetAspire. In its 11th year, Vet Camp is a student-led program by which pre-teens and teenagers get hands-on experience through overnight and day-camp sessions; teens from lower socio-economic backgrounds are supported through need-based scholarships to attend. The College's open house is an interactive event held annually and managed by Year-2 students. The event draws more than 2,000 school children and their families to the CVM for tours, activities, and opportunities to engage children interested in veterinary medicine, allowing DVM and VMTP students to direct an outreach project that solicits new students to the College's programs. The VetAspire program was developed to introduce underserved high school and college students to the veterinary profession by allowing them to "be a veterinary student for the day". Veterinary students coordinate the program and facilitate hands-on labs and presentations given by faculty and staff of the college. Through VetAspire, our veterinary students gain valuable experience working with individuals from various backgrounds that encourages thinking about providing veterinary care to underserved communities.

MSU is in a rural and ethnically diverse area and as a result, students on the large animal ambulatory rotation routinely interact with clients from a wide variety of ethnic, economic, and social backgrounds. The socioeconomic population of northeast Mississippi provides a diverse clientele allowing students to participate in case management in which economic restraints frequently influence the provision of veterinary services. The students are also exposed to a culturally and economically diverse clientele while at the AERC. The College also offers a study abroad elective course, Tropical Veterinary Medicine and One Health, in which CVM partially funds participating students. This course exposes students to veterinary medicine in Uganda and east central Africa. Emphasis is on One Health perspectives and cultural immersion in international animal production, animal health, disease surveillance, control of transboundary diseases, public health systems, and food safety. The College also supports international travel for students working with the CVM-led USAID Fish Innovation Lab and the CVM's program with the United Nations Food and Agricultural Organization.



9.10. Describe opportunities for students to learn principles of business management skills in veterinary medicine, and opportunities to learn personal financial management (e.g., coursework in financial literacy in the curriculum).

CVM students are first exposed to the importance of financial literacy during orientation when the MSU Director of Financial Literacy speaks to students about the importance of many of the financial decisions they will be making while in school, as well as where to access available resources at the University. Additional information and instruction in financial literacy is presented in the MSU CVM Professional Development courses. In Professional Development I, students receive instruction on budgeting, loan repayment options, and other relevant topics. In Professional Development IV, students receive 15 hours of content, including interactive sessions, where more advanced financial skills are taught, including contract law and negotiations, and understanding profit/loss statements and balance sheets. Students can also engage with the instructor, Dr. Lance Roasa, who is a veterinarian and an attorney. (See Appendix Standard 9 for full list of topics covered in this course). The Veterinary Business Management course is a two-week, Year-4 elective that is very popular with Year-4 students, and additional classroom space has been provided so that all interested students can attend. This course receives excellent student reviews, and many students comment that the knowledge gained in this course enabled them to make sound business decisions related to job offers and loan repayment options. The CVM website includes a page dedicated to careers/practice building, focusing on “The Business of Veterinary Medicine” and the Annual MSU CVM Career Expo ([Careers/Practice Building | Vet Med \(msstate.edu\)](https://msstate.edu/careers/practice-building-vet-med)). The student VBMA chapter is also very active and hosts speakers who provide content related to veterinary business/financial matters almost monthly throughout the fall and spring semesters. The chapter was awarded the VBMA Communication Excellence Award in both 2019 and 2021 and was nominated for the student chapter of the year in 2021.



STANDARD 10: RESEARCH

STANDARD 10: RESEARCH





STANDARD 10. RESEARCH

12.10.1. Describe up to five programs of research emphasis and excellence and specifically focus on how these programs integrate with and strengthen the professional program.

Center of Biomedical Research Excellence in Pathogen-Host Interactions

Infectious diseases/immunology have been one of MSU CVM's largest and most productive research areas for many years. Since the last site visit, the CVM received renewal of funding (\$10.5 M) for five years (2018-2023) for the NIH-funded Center of Biomedical Research Excellence (COBRE) in Pathogen Host Interactions. This center provides funding for faculty research projects, provides vital research infrastructure, and enables structured mentoring to young faculty members involving leaders in their fields of study. Two of the previous COBRE (2013 -2018) investigators, associate professors Drs. Barbara Kaplan and Keun Seok Seo, and the COBRE Principal Investigator, Dr. Stephen Pruetz, currently serve as leaders for the MSU-CVM Summer Research Experience (SRE) for Veterinary Students. Drs. Kaplan, Seo, and Pruetz all participate in teaching DVM students, and Dr. Seo is team leader of the core infectious disease course, Infectious Agents I. Five MSU CVM infectious disease researchers were selected by the Agricultural Research Service (ARS) and the Animal and Plant Health Inspection Service (APHIS) to train scientists to work at the National Agro- and Bio-Defense Facility (NBAF) which is the replacement facility for Plum Island. These five scientists are collaborating with ARS scientists to provide post-doctoral or pre-doctoral training to DVM/PhD students or graduates whose skills are needed at NBAF. Two of these trainees are CVM graduates receiving their DVM in 2018 and 2020.

Epidemiology

In the past several years, MSU CVM has made strategic hires of faculty with expertise in epidemiology and risk assessment. Drs. David Smith and Margaret Khaitza, along with Drs. William Epperson, Robert Wills, Carla Huston, Cooper Brookshire, and Kimberly Woodruff, are board-certified in preventive medicine and share research and teaching interests in population health, antibiotic resistance, and One Health. The MSU CVM Risk Project consists of this group of epidemiology and preventive medicine faculty who involve veterinary students and house officers in many research projects and outbreak investigations across the College. Through their work, veterinary students have opportunities to help with data collection and analysis and to critique research presentations. Since the 2014 site visit, 15 veterinary students have been mentored in the SRE program, the USDA National Institute of Food and Agriculture Foundation for Food and Agriculture Research (NIFI FFAR) Summer Fellows program, or otherwise by these faculty. In the summer of 2018, Drs. Smith and Woodruff also involved 17 CVM students and one graduate student in data collection and analysis in a five-state animal shelter survey. Dr. Smith has also recently received significant funding for a USDA Center of Excellence project on antimicrobial stewardship, and he and others in this group have recruited outstanding DVM/PhD (DVMs received from MSU) students. Epidemiology faculty participate in and lead several core courses in the DVM curriculum in which they actively involve students in understanding the research process, and importantly, are producing entry-level graduates with demonstrated skills in both interpreting and communicating results of research. For example, in 2016, Drs. Smith and Woodruff developed a new three-week clinical core rotation, population medicine, which they continue to lead. During this core rotation, students participate in field disease outbreak investigations and demonstrate their ability to synthesize original research to answer a clinically relevant question. Dr. Woodruff leads the core epidemiology course and Dr. Brookshire leads the core preventive medicine didactic course. All five of these faculty are board-certified veterinary epidemiologists and, together with Dr. Carla Huston, comprise the largest single group of such specialists among US colleges of veterinary medicine. Additionally, this group of faculty serves on several University and national committees and advisory groups. Drs. David Smith and Brookshire serve on the American Veterinary Medical Association's Committee on Antimicrobials. Dr. Huston is currently an advisory member on the President's Committee on Combatting Antimicrobial Resistance. Dr. Huston leads the college's disaster response effort and involves students in this effort (as volunteers and both as a club and as a popular elective course). In 2021, Dr. Khaitza was selected as a Fulbright Scholar to teach women faculty in Kenya (to be completed in 2021-22 because of COVID travel restrictions). Dr. Khaitza teaches principles of global One Health, including cultural competency, in a core professional development course and each year leads a One Health study-abroad elective course to Uganda, where our veterinary students interact with veterinary students from Uganda,



Kenya, and Tanzania. Dr. Khaitza was recently selected to serve on a 26 member “One Health High-Level Expert Panel” to advise FAO, World Organization for Animal Health, World Health Organization, and the United Nations Environment Program on animal, human, plant and environment impact on global health. During the COVID pandemic, our epidemiologists and preventive medicine faculty, together with our hospital director and building supervisor, served as a CVM COVID Task force charged to analyze the literature and available data to provide the best scientific advice to inform College administration on virus mitigation policies. They also used these opportunities to engage students in the population medicine clinical rotation. Additionally, since our last site visit, three of our DVM students have continued as graduate students with these faculty. In 2020, two of our current Year-3 students who were advised by RISK program faculty were selected to receive prestigious FFAR Fellowships and in Fall 2021, two current Year-4 students, again advised by this faculty, will be completing research externships with United Nations Food and Agriculture Organization (UNFAO) in Vietnam.

Center for Environmental Health Sciences

The Center for Environmental Health Sciences (CEHS) is a multi-disciplinary research center housed in the CVM that focuses on the impact of environmental chemicals on the health of humans, animals, and the environment. The faculty of the CEHS have been successful in obtaining competitive funding for their work, particularly from the National Institutes of Health. Current value of total active NIH grant funding by CEHS faculty is more than \$10 M. Dr. Janice Chambers, director of the center, has a successful NIH U01 research project (\$3.37 M), the goal of which is the development of new antidotes directed to protect the warfighter against military-type nerve agents and civilians from terrorist use of these same agents. Summer Research Experience program students participate regularly with CEHS faculty as their mentors. Since 2014, 19 veterinary students in the SRE program have been mentored by CEHS faculty. A DVM/PhD student finished his PhD in the laboratory of a CEHS faculty member in 2020 and is now a postdoctoral scholar at M.D. Anderson Cancer Center in Houston, and the same faculty member has another DVM/PhD student who finished in 2021 and is now employed by CDC. Both of these DVM/PhD students received DVM's from MSU in 2016, one of whom, Dr. Brittany Szafran, also received the 2021 Boehringer Ingelheim Research Award for Graduate Veterinarians.

Aquatic Animal Health

Fourteen members of the CVM faculty have, in addition to teaching, an academic focus on research and/or diagnostics related to bacteriology, virology, parasitology, immunology, toxicology, and pathology of diseases of aquatic animals. This group of scientists constitutes the largest such group of aquatic animal health specialists among U.S. colleges of veterinary medicine. Addressing the needs of the state's aquatic industry (the largest in the U.S.) continues and is supported primarily by USDA extramural grants (currently \$7,749,456 of active USDA grants). Just prior to our last COE site visit, MSU created the Global Center for Aquatic Food Security (GCAFS) with CVM as the lead unit. MSU CVM Professor Dr. Mark Lawrence serves as the director of GCAFS. In 2014, the United Nations Food and Agricultural Organization (FAO) recognized GCAFS as a UN Center of Knowledge in Aquatic Animal Health, the first veterinary college in the world to receive this designation. In 2018, Dr. Lawrence, as the P.I., led the CVM in securing two large grants as the lead institution (approximately \$23 M) that further expanded the reach and impact of the College's aquatic health program. The first was the USAID Feed the Future Innovation Lab for Fish. This USAID project is a five-year \$15 M program (with another \$20 M available for in-country projects) whose mission is to aid in alleviating poverty and improving nutrition in vulnerable human populations through the reliable provision of fish, a nutrient-rich animal source food. This program currently supports research and capacity building projects in Nigeria, Bangladesh, Kenya, Zambia, Ghana, Malawi, Ghana, and Cambodia. In addition to the overall project providing teaching materials for the CVM curriculum, veterinary students can travel to some of these countries and participate in research projects (our first student is scheduled to go to Zambia in 2021). The second large grant was also received in 2018 and was from the National Fish and Wildlife Foundation (NFWF). It is a five-year \$7.2 M grant for marine mammal and sea turtle conservation, recovery, and monitoring. The marine animals of particular interest are bottlenose dolphins and critically endangered Kemp's ridley sea turtles. Following this grant, the CVM received, as P.I. a \$3.4 M grant (for two years) from the Gulf of Mexico Energy Security Act (GOMESA) administered by the Mississippi Department of Marine Resources. The GOMESA grant is to study the deleterious effects on marine animals, primarily bottlenose dolphins, from the freshwater incursion into the Mississippi Sound from a release from the



Mississippi River. Partners in our work on the Mississippi Gulf Coast are scientists from IMMS. The overall program on the Gulf Coast supports veterinary education at MSU CVM by providing all students the opportunity to participate in a two-day experience during their Year-3 pathology rotation. On the first day, students participate in physical exams and diagnostic procedures conducted on dolphins and sea turtles. On day two, they participate in necropsies on dolphins and sea turtles that have stranded. Students also participate in procedures on these animals as some are brought to the MSU campus for treatment or necropsy. In addition to the 14 faculty members mentioned above, clinical specialists from MSU CVM also engage in rehabilitating sea turtles, and students also participate in these procedures (radiology and advanced imaging, endoscopy, internal medicine, ophthalmology, and anesthesiology). The CVM has two faculty members supported by these grants that are stationed at IMMS facilities. Students may conduct Summer Research Experiences at IMMS. They may also participate in a clinical externship experience there. When students cannot physically be at IMMS, the faculty there have distance technology capabilities to involve the students on our main campus in real time participation on cases. In addition to student research conducted at IMMS, faculty in our aquatic animal health program have mentored 13 students in the SRE since our last COE site visit and manage a monthly virtual seminar series for students (“Marine Monday!”).

Applied Respiratory Disease Research program

The MSU CVM Applied Respiratory Disease Research (ARDR) program is focused on pathogenesis, diagnosis, treatment, and prevention of respiratory disease in horses and ruminants. DVM students can gain experience with clinical techniques including collection of blood or nasopharyngeal swabs, ultrasound evaluation of thorax, bronchoalveolar lavage, pulmonary function testing, and thoracoscopic lung biopsy. Students also develop skills in scientific writing and presentation, critical thinking, and understanding the influence of bias in discovery. Technologies such as transcriptomics and proteomics are used to identify new pathways of host response that contribute to respiratory disease. Additionally, research is aimed at revealing how animal genetics impact response to therapeutic or prophylactic intervention, establishing a path for application of “personalized medicine” to respiratory disease in animals. Thus, DVM students working in the program learn about research developments that will be applied to animals in coming decades. Experience in the ARDR program not only prepares DVM students for work in research, but also to become informed clinicians or specialists in policy or industry who understand and can link research with clinical application. Since the last COE site visit, 22 DVM students have participated in the ARDR program through the MSU CVM SRE program, in which all ARDR faculty are regular mentors. Additionally, undergraduate and graduate students, including four masters’ students and six students in the DVM/PhD program, have been trained through the ARDR program. Students who have completed programs through ARDR are currently pursuing careers in academia, including laboratory animal medicine and animal health research.

12.10.1.a. Provide a description (one page or less) of measures of faculty research activity, apart from publications and grants enumerated in Tables 10.3.b and 10.3.c (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 research awards received).

	2016	2017	2018	2019	2020
Presentations, abstracts, posters	52	57	52	121	167
Service on panels and advisory boards	26	35	30	27	28
Awards	4	3	3	7	3
Masters Students Enrolled (Graduated)	23 (5)	21 (7)	22 (7)	24 (12)	28 (8)
PhD Students Enrolled (Graduated)	58 (7)	50 (10)	51 (14)	41 (10)	33 (4)

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

A summary of where research topics are integrated into the DVM curriculum is provided in Appendix Standard 10 (Table D). Veterinary students are taught research methods, experimental design, and research applications in several didactic courses. In the professional development core courses students

receive instruction in research, including overview of the Summer Research Experience program, careers in research, ethical use of animals in research, and overview of the DVM/PhD graduate programs. They also receive lectures from the CVM librarian regarding finding peer-reviewed evidence and from faculty on critical evaluation of scientific literature and understanding the evidence pyramid. In the veterinary epidemiology course in Year-1, students receive four hours of instruction on classifying, summarizing, and presenting data; descriptive and inferential statistics; study design with emphasis on observational studies; interpretation of measures of association; and interpreting diagnostic tests. In the preventive medicine course during Year-2, students receive instruction on the definition, characteristics, and importance of peer-reviewed articles, pyramid of evidence (including meta-analysis), and how to read/interpret a scientific article. A lecture entitled, “The Essentials of Research” is presented by Dr. Barb Kaplan, director of the SRE program, during the core immunology course. The infectious agents and immunology courses in Year-1 integrate original research findings into lectures demonstrating how information was derived and illustrating how principles of experimental design are applied to answer scientific questions. Research examples used are either from the presenter’s original research or from relevant research from the scientific literature.

In clinical rotations, research methods and findings are routinely discussed with students. For example, the Year-3 population medicine rotation emphasizes the use of scientific literature and evidence-based medicine for clinical decision-making. During the rotation, all students must demonstrate expertise in interpreting scientific literature by completing a critical appraised topic (CAT) which requires students to ask a clinically relevant question, then search for, summarize, and present research data that answer the question. In the small animal surgery rotation, students are exposed to ongoing research within the small animal surgery service, and opportunities are made available for student participation. The small animal internal medicine rotation has a journal club meeting, which is evaluated and graded, requiring each DVM student to critically evaluate a clinically relevant research article. Food animal medicine and surgery addresses scientific review in student rounds presentations. The elective course, Veterinary Student Research Initiative, is offered in Year-3 or Year-4 to ensure that all veterinary students have an opportunity to receive research training and conduct a research project under the direct supervision of a faculty mentor.

The Clinicopathologic Conference (CPC) course is required of all Year-4 students. This course requires each student to use scientific literature to assemble a written literature review and oral presentation. The literature review format fulfills the requirements for JAVMA so that a student can submit a paper for publication. Since 2014, seven students have submitted their CPC manuscript to a veterinary journal, and, to date, three of the manuscripts have been published. Each student works under the supervision of a faculty mentor. During Year-4 each student must make a presentation to the College, including faculty, house officers, and students, during scheduled class time (8-9 a.m. Fridays). No other classes are scheduled for Year-1 and Year-2 students at this time so they can attend. CPC papers from the most recent three years remain available for restricted access by MSU-CVM faculty and students on the College’s website.

12.10.2.a Describe/list the current opportunities for participation in research, including summer research programs (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.

Summer Research Experience: MSU CVM has had a Summer Research Experience program funded continuously by Merial for the past 21 years (2000- 2021). The College was also awarded an NIH T35 grant to support the SRE program in 2002 and has maintained continuous competitive funding from NIH for the program. Since its inception, the SRE has provided faculty-mentored research experiences for 458 veterinary students. A total of 134 veterinary students participated in the program from 2014-2021. Of these, 107 were MSU-CVM students, 25 were from Tuskegee University, one was from Toulouse (France), and one was from North Carolina State University. All students participating in the SRE program receive a stipend of \$5,400 for the 12-week program. MSU CVM also provides financial support for student travel to the National Veterinary Scholars Symposium, travel to research animal facilities at the University of Mississippi Medical Center, and costs for recruiting students into the program. Students participating in the SRE program receive hands-on experience designing, conducting, analyzing, and reporting bench, clinical,



or field research under the guidance of an experienced faculty mentor. Students also receive instruction in research ethics, animal use in research, laboratory safety and biosafety, scientific writing and presentations, patenting and licensing, record keeping, and research proposal development. As a component of the program, students receive instruction and write a short research proposal in NIH specific aims format.

Research Elective Course: In 2014, MSU CVM implemented a plan to engage students in the veterinary professional curriculum in formal mentored research programs. The College committed an additional \$40,000 per year to supplement funding for stipends to increase student participation in the Summer Research Experience program and to support student participation in research throughout the year. A Year-4 research elective course, Veterinary Student Research Initiative, was created to provide opportunities for students to receive two to six credit hours in the DVM curriculum for short-term participation in research projects under the direct supervision of a faculty mentor. Students receive up to \$1,500 to cover the cost of the research project. Fourteen students have enrolled in the course since 2014.

Study Abroad Research Program: The College has invested in international programming, particularly in Africa, with the expectation that this will stimulate student interest and expand veterinary activity in global One Health endeavors. Eight students have coupled the SRE with study abroad and have completed the field portion of their projects in Uganda. The CVM has committed \$40,000 per year for five years (2019-2024) to provide travel support for DVM students who participate in college study experiences in CVM-led study-abroad programs in Uganda, in research projects in Zambia with the CVM-led USAID Fish Innovation Laboratory, or our program with the UNFAO. Because of the COVID-19 pandemic, MSU cancelled all university study abroad programs in the summer of 2020. The Uganda study abroad program resumed in summer 2021.

DVM/PhD Program: The College's combined DVM/PhD degree program began in 2008. The College limits enrollment (with tuition discount) to no more than two students (on average) per class. Eleven students have completed the program and nine are currently enrolled. The College provides in-state tuition minus \$10,000 per year for these students while they are in the veterinary curriculum. Graduates of the DVM/PhD program are listed in Appendix 10 (Table E).

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

The annual MSU CVM Research Day was initiated in 2007. The 15th annual Research Day was held on August 12, 2021. The purpose of Research Day is to recognize and promote research conducted at the CVM. In particular, the event is intended to foster a culture of research among the veterinary professional students and encourage them to become involved. Research Day is a required experience attended by all Year-1 and Year-2 veterinary students.

Each year, all MSU veterinary students from the Summer Research Experience program give presentations at Research Day, with some selected for oral presentations and the remainder giving poster presentations. Oral presentations are selected by a faculty panel evaluating the quality of students' oral presentations at the end of the SRE program. The oral presentations at Research Day are judged, and the top two presenters are recognized with awards. Three SRE students present their research at the annual Mississippi Veterinary Medical Association Winter Meeting.

Each Research Day, a featured speaker is invited to give a one-hour presentation attended by all Year-1 and Year-2 students. Each speaker is a nationally recognized DVM, PhD researcher who is a positive role model for veterinary and graduate students. Since our last site visit in 2014, speakers have included:

- Julie Funk, DVM, PhD, Professor, Michigan State University (2015). Currently, Dr. Funk is Dean, College of Veterinary Medicine, University of Arizona.
- Paul Buckmaster, DVM, PhD, Professor of Comparative Medicine and Neurology, Stanford University (2016)
- Craig Franklin, DVM, PhD, DACLAM, Professor, Department of Veterinary Pathobiology, University of Missouri (2017)



- Cathy S. Carlson, DVM, PhD, DACVP, Professor and Chair, Veterinary Clinical Sciences Department, College of Veterinary Medicine, University of Minnesota (2018)
- Brian Berridge, DVM, PhD, DACVP, Associate Director, National Toxicology Program, Scientific Director, Division of NTP, National Institute of Environmental Health Sciences/National Institute of Health (2019)
- Annette O'Connor, BVSc, MVSc, DVSc, FANZCVS, Professor of Epidemiology and Chairperson, Department of Large Animal Clinical Sciences, College of Veterinary Medicine, Michigan State University (2020 - virtual due to the COVID-19 pandemic)
- Roxann Brooks Motroni, DVM, PhD, National Program Leader for Animal Health, Office of National Programs, USDA, Agricultural Research Service (ARS) (2021)

Seminars and presentations are also provided to members of the CVM Laboratory Animal Practitioners/Research Club, a student organization that meets frequently throughout the year to discuss topics related to laboratory animal medicine, biomedical research, and career opportunities in these fields.

12.10.2.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.

The MSU CVM DVM-PhD program was initiated in 2008. Currently, there are nine DVM-PhD students in the program. The dual degree program is designed so that students begin with four years of the DVM curriculum followed by approximately three years to finish the requirements of the graduate program. In this manner, students receive the DVM degree with the veterinary class with which they started. During the DVM curriculum, DVM-PhD students conduct research between the first and second year in conjunction with the Summer Research Experience Program. They also can take graduate courses during their time off in the third year and after completing all required courses in the fourth year. Up to 18 hours of graduate courses can also serve as veterinary electives. The DVM-PhD students receive a stipend and tuition waiver during the graduate school portion of the curriculum. Approximately two students per year are selected to receive a scholarship for resident tuition minus \$10,000 annually during the DVM curriculum. Students can apply to enter the DVM-PhD program concurrently with their DVM application or in the fall semester of Year-2.

In addition to the DVM/PhD program, a number of veterinary students who complete the Summer Research Experience elect to also pursue graduate degrees during the DVM curriculum. Twenty-seven of the 75 SRE participants from 2014-2017 (36%) pursued advanced training after receiving their DVM degree (residency/MS - 19, master's - one, PhD - seven).

In 2013, MSU CVM created a two-year residency/master's degree program to train future poultry veterinarians. This program, one of eight training programs in the US approved by the American College of Poultry Veterinarians (ACPV), provides the students with a salary that is currently supported by three companies (pharmaceutical/diagnostic) allied to the poultry industry. Students in this program are based at the Poultry Research & Diagnostic Laboratory in Pearl, MS. The faculty involved in this program includes four poultry veterinarians with outstanding academic and professional recognition at national and international levels, with board certifications by the ACPV and the American College of Veterinary Microbiologists. To date, eight graduate veterinarians, including three from MSU, have completed or are currently enrolled in this program.

All clinical residents, except those in neurology, anatomic pathology, and theriogenology are required to complete an MS degree program. Some of the clinical residents elect to pursue a PhD degree instead of an MS. As a result, DVM students interact daily with clinical resident/graduate students while in their clinical rotations.

12.10.3 Complete the following tables

Tables A, B, and C provided in Appendix Standard 10



STANDARD 11: OUTCOMES ASSESSMENT

STANDARD 11: OUTCOMES ASSESSMENT





STANDARD 11. OUTCOMES ASSESSMENT

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

11.1.a. Evidence of direct observations of students performing and/or having attained entry level competence in skills that demonstrate mastery of the nine competencies. Processes must be in place to provide remediation for any of the nine competencies in which students do not demonstrate competence.

The College uses direct and indirect assessment methods to evaluate student proficiency in achieving the learning objectives for each of the nine clinical competencies which are embedded throughout the curriculum (Appendix Standard 11). These assessment methods were originally developed through consultation with MSU Professor of Curriculum, Instruction, and Special Education Dana Franz, PhD. Evaluation of student proficiency in the nine clinical competencies begins in Year-1 of the curriculum and continues more extensively in Year-3 and Year-4 while students are on clinical rotations, electives, and supervised externships. (Appendix Standard 11)

Students are evaluated during clinical rotations using a standardized rubric that assesses proficiency in the clinical competencies. Rotation evaluations also assess each student's performance in areas unique to that specific rotation. Learning objectives in each rotation are used to create electronic assessment forms. There are 10 main categories in which students are evaluated: 1) basic and applied knowledge, 2) analytical (problem solving) skills, 3) technical skills, 4) surgical skills, 5) health promotion/disease prevention/biosecurity/zoonosis, 6) patient management skills, 7) emergency and critical care, 8) critical analysis of new information and research findings relevant to veterinary medicine, 9) communication skills, and 10) professional values/behaviors/ethics. Specific assessments are made within each of these main categories, and each direct assessment on the evaluation tool is linked to one or more of the nine clinical competencies. A similar assessment rubric with defined performance levels and corresponding scores is used across the required rotations to evaluate clinical competencies. (Appendix Standard 11) This instrument is used by faculty, house officers, and technicians as part of the evaluation process and contributes to the student's final grade for required clinical rotations.

The clinical competency data for each student are collected longitudinally across all required rotations, allowing the associate dean for academic affairs and co-director of clinical education (Dr. Christine Bryan) to track a specific student through the required rotations and evaluate their performance in each clinical competency area. If a student consistently demonstrates poor performance, the student is notified and given strategies for improvement in the area of demonstrated weakness.

Additionally, students are evaluated by direct assessment with formative mid-block evaluations in every rotation lasting four weeks or more. Mid-block evaluations provide students with real-time feedback while still providing an opportunity for them to demonstrate proficiency of a skill or clinical competency before the rotation is completed. Mid-block evaluations are used exclusively to inform students of their performance across several broad competency domains and have no bearing on the student's final grade in the rotation.

Threshold Events/Threshold Performances

The College employs threshold events and threshold performances as methods of assessment of students' proficiency in the nine clinical competencies (Appendix Standard 11). Most of the threshold events and threshold performances are via direct measures. A threshold event is an assessment tool utilized to evaluate entry level skills, knowledge, and competencies expected of new graduates entering clinical practice. Threshold performance is the minimum score a student must achieve to satisfactorily demonstrate clinical competency in a basic skill or knowledge assessment. Threshold performance must be demonstrated in a specific assessment to pass the rotation regardless of the overall grade received during the rotation. Competency-specific threshold events and threshold performances are assessed via direct measures, using faculty observation, written proficiency examinations, and clinical proficiency examinations [mini-Clinical Evaluation Exercises (CEX), Observed Structured Clinical Examinations (OSCE), or Directly Observed Procedural Skills (DOPS)]. Students failing to successfully complete a threshold event or performance are notified where improvement is required and given additional opportunities to successfully complete the activity.

There are from one to 11 threshold events in each required clinical rotation. All core clinical rotations also require students to pass a written examination (direct assessment) that is NAVLE-like and locally



standardized. A mini-CEX, DOPS, or OSCE (direct assessment) is also used as part of student evaluation and is incorporated into a threshold event in nine core rotations: food animal medicine and surgery, diagnostic imaging, anesthesia, laboratory services, equine medicine and surgery, community veterinary services, Veterinary Specialty Center rotation, ambulatory, small animal internal medicine, and the AERC rotation. These clinical proficiency exams are similar in scope and nature to the CPE used by the AVMA-Educational Commission for Foreign Veterinary Graduates (which the College has administered several times per year since 1982). These clinical proficiency exams, in addition to the written exams, enable direct assessment of each student across the nine COE competencies.

Clinical Proficiency Exams Overview

- Students on the Year-3 food animal medicine and surgery rotation are assessed on their clinical competency utilizing a live animal and simulated dystocia model as part of the rotation's clinical proficiency exam (OSCE). Adult dairy or beef cows are used, and the students must demonstrate specific entry level procedures or techniques expected of new graduates. The students rotate through multiple stations and are observed as they perform various skills and procedures.
- Students on the Year-3 diagnostic imaging rotation are assessed on their ability to interpret a wide range of radiographic studies encompassing the thorax, abdomen, and musculoskeletal system of small and large animals; generate appropriate differential diagnoses based on their interpretation of images; and make appropriate therapeutic and prognostic decisions.
- Students on the Year-3 anesthesia rotation must complete a mini-CEX under direct observation to demonstrate that they can safely and competently plan and carry out an anesthetic procedure for a clinical patient without faculty or staff assistance.
- Students on the Year-3 laboratory services rotation must demonstrate proficiency in performing a necropsy (DOPS) as well as a written anatomic report detailing the lesions and interpretation of the findings of the necropsy. Students are also assessed using quizzes over material covered from an online library provided by a pathology training organization. Additionally, students on this rotation must pass a clinical pathology exam which mimics real cases and scenarios encountered in routine general practice.
- Students on the Year-3 equine medicine and surgery rotation are assessed using a clinical proficiency examination (OSCE) as one component for evaluation of student knowledge base. Each student rotates through several stations where they are asked to demonstrate techniques/procedures using live horses. This clinical procedures practical exam is similar in scope to that used in the food animal exam.
- Students on the Year-3 community veterinary services rotation are video recorded while interacting with an actual client in an exam room. As a part of the weekly communication rounds, the client-student interaction videos are then reviewed in a group setting with the students on the rotation and a faculty member who has completed communications training. The students are encouraged to discuss the fundamentals of communication that they can identify in the videos while observing baseline privacy rules to protect anonymity of the clients, minimize student stress, and encourage open discussion. After the review of the videos, students work with the faculty to develop areas to improve upon and suggestions and strategies relative to these areas are discussed. Also on CVS, student performance during elective surgeries is directly observed and evaluated by a faculty member who provides in-the-moment feedback. Students on the CVS rotation are also required to complete a clinical competency-based assessment (mini-CEX) involving risk assessment of a patient that presents for vaccinations. While working with a faculty member or house officer, the student must collect a history, perform a physical examination, and then recommend the appropriate (age and lifestyle) vaccinations for their patient.
- Students in the Year-4 Veterinary Specialty Center (neurology and ophthalmology) rotations complete a clinical competency-based assessment. For the neurology portion, students randomly select a card with a written neurological assessment, e.g., reflexes, responses, cranial nerve assessment, etc. and complete the specified task and answer a question about the task (DOPS). Students also complete a review of a journal article related to a case-based topic from the rotation. Both are thresholds and must be completed successfully for completion of the rotation. For the ophthalmology portion, students draw at random two exam techniques or clinical tests and must successfully perform them on an appropriate patient during the rotation (DOPS). A question must be answered after the conclusion of the test as well. Students also must complete a brief presentation on an ophthalmology topic of their choosing during the rotation.
- Students on the Year-4 large animal ambulatory rotation are given two herd-based case scenarios and



two individual animal case scenarios. With the herd-based cases, each student must fully investigate the case prior to interviewing the “client” (who is an ambulatory service faculty member). Each student meets with the “client” and asks questions to elucidate additional information. During these interviews, the students are assessed on their ability to elicit proper information, devise a management plan that addresses the problem, and their knowledge of the costs associated with the proposed plan. These scenarios take place over three to five days and conclude with the faculty member reviewing each scenario with the students and ensuring they have a sound understanding of the condition presented and the decisions made while working through the case.

- Students on the Year-4 small animal internal medicine rotation complete two clinical competency threshold events (DOPS). The first involves oral and written presentation of a patient’s history and physical examination and completion of a problem list worksheet. The second involves accurate and complete interpretation of complete blood count and serum chemistry profile for one of their patients.
- Students on the Year-4 Animal Emergency and Referral Center rotation (AERC) must present the history, physical exam findings, problem list, differentials, and an action plan for a clinical case to the faculty overseeing care of the case (mini-CEX).

Externship Mentor Evaluations

Year-4 students who participate in externships are also evaluated on the nine clinical competencies by their externship mentor. Students are evaluated with a formative assessment covering six basic areas of competency at the midpoint of the experience. At the conclusion of the experience, a summative assessment is completed by the externship mentor using a rubric assessing 32 skills or attributes which includes technical/animal handling skills, communication skills and professional behaviors/attributes. This rubric permits the assessment of similar clinical competencies and skills as students who participate in on-campus clinical rotations. Externship mentors may also provide specific written feedback. Data from these evaluations are collected, evaluated, and used in part to assess educational preparedness of students to enter veterinary practice. Additionally, students are required to complete detailed case logs of patients seen during externship experiences. These are reviewed by the co-directors of clinical education for thoroughness and numbers of patients seen. A summary of externship mentor evaluations is provided in Appendix Standard 11.

Clinical Procedures Checklist

Clinical procedures checklists are used to document technical proficiency skills performed by students in the curriculum and ensure basic technical skills are measured directly. Service chiefs polled their respective faculty members to obtain a list of procedural competencies expected of an entry level veterinarian. These lists were compiled into the clinical procedures checklist that currently contains 338 (124 required) procedures. Students begin documenting procedures performed in Year-2 laboratories, Year-3 and Year 4 clinical rotations, and the critical care laboratory. Seventy percent of the required procedures must be completed at the end of Year-3. Eighty-five percent of the required procedures must be completed by December 1 of Year-4. The data from the checklists are entered into a spreadsheet for review by the associate dean for academic affairs and the curriculum committee.

11.1.b. Describe how student progress is monitored in each academic year and how each student is given formative assessment for their further development or timely remediation.

The clinical competency data for each student are collected longitudinally across all required rotations, allowing the associate dean for academic affairs to track a specific student through the required rotations and evaluate their performance in each clinical competency area. If a student consistently demonstrates poor performance, the student is notified and given strategies for improvement structured toward the area of demonstrated weakness. While in Year-1 and Year-2, students receiving a grade of D or below on any test or in any course are individually contacted by the associate dean for academic affairs who helps formulate a success plan moving forward. This plan typically includes peer tutoring services and access to the CVM clinical psychologist and her resources and assistance. The associate dean for academic affairs maintains contact with these students to insure they receive the necessary resources and encouragement.



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

Table A - NAVLE Results

	Students taking exam(s)	Students passing exam(s)	Average scores
2021	91	90 (99%)	518 (+/-55)
2020	88	85 (97%)	508 (+/-59)
2019	91	90 (99%)	534 (+/- 54)
2018	82	79 (96%)	527 (+/- 63)
2017	81	80 (99%)	516 (+/- 61)

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

Before graduation, Year-4 students complete an electronic student satisfaction exit survey that gathers data regarding their satisfaction with their education, clinical skills acquired, their self-reported competency in the AAVMC Entrustable Professional Activities (EPAs), as well as the value and amount of time allocated for each core course in the curriculum. These data for the previous five classes 2017-2021 are available in Appendix Standard 11, along with a table describing how EPAs correspond to the nine COE clinical competencies. Student satisfaction exit survey data are reviewed by the MSU CVM Cabinet and distributed to the curriculum committee for their use in curricular assessment. Additionally, all students are sent an email reminder notifying them of the suggestion box to be used for anonymous input regarding any of the COE standards, as well as the anonymous suggestion box that is available for their input on the CVM website.

In the three weeks preceding graduation, each Year-4 student is invited to the Dean’s home for dinner and an informal exit interview before graduation (these dinners did not occur in 2020 due to COVID restrictions but feedback was solicited electronically). Attendance at these events typically approaches 100% of the class (groups of 20-22 are hosted over several evenings). These interviews are attended by the dean, associate dean for academic affairs, associate dean for administration, and the director of admissions. Specific questions regarding satisfaction with the curriculum, facilities, and policies are posed, and students are encouraged to comment on any CVM-related topic. Additionally, each student is provided a card and asked to provide constructive criticism anonymously. Students are advised that they may schedule confidential meetings with the dean and/or other administrators. Notes taken during the exit interviews and all anonymous comments are compiled into a report. Pertinent information gleaned during these meetings is shared with the curriculum committee, department heads, and faculty as appropriate.

Alumni are surveyed within the first three years of graduation with an online questionnaire containing 30 questions that measure their satisfaction with the overall quality of their veterinary education, clinical, diagnostic, and surgical skills acquired, as well as each of the remaining COE competencies. Results from alumni surveys from the previous five classes (2016-2020) can be found in Appendix Standard 11.

Survey results indicate that there are three areas which may warrant additional emphasis: (1) Alumni suggested more training in emergency and intensive care management. This was addressed through the AERC rotation during which students help manage many emergency cases in a busy urban referral center. In addition, two new emergency faculty for the Starkville campus were hired in 2020. This has allowed expansion of the emergency service to include the intake and workup of patients during daytime hours, as well as after-hours. This has greatly expanded the students’ exposure to emergency and critical care cases seen on the rotation at the AHC. (2) Alumni recommended more training in business and management skills. This was addressed by using a lecture capture system to record lectures in the Veterinary Business Management Year-4 elective course (allowing all students access to the materials covered), employing additional classroom space to allow more students to enroll in the elective course, and continuing the incorporation of VetVance® on-line modules into the CVS rotation and during Year-1 orientation. Beginning in 2021, this elective course was offered in June (six months earlier in Year-4) to reach students earlier so they can use the knowledge and skills acquired as they negotiate job searches in Year-4. (3) Alumni commented that scheduling changes could enhance student well-being. This was addressed by ensuring that Year-1 and Year-2 students have a dedicated exam day each week, as well as have one afternoon off each week



to attend to their wellness. Changes planned for Phase 2 of the curriculum are also designed to improve scheduling.

11.1.e. Assessments by employers of graduates to determine satisfaction with the graduates.

Employers of CVM graduates are surveyed with a 50-question survey assessing the employee’s competency. The COE Core Competencies as well as the AAVMC Entrustable Professional Activities are assessed as part of this survey which is currently distributed one year after graduation. Survey results from employers of graduates from the previous classes are available in Appendix Standard 11. The competency areas which received the lowest ratings were related to more complex surgical procedures, i.e., fracture repair, intestinal anastomosis, GDV correction, and business knowledge. However, these areas still received acceptable ratings. Overall, results indicate that employers of MSU CVM graduates are very satisfied with the students’ preparedness to enter practice.

11.2. Program Outcomes

11.2.a. Student attrition rates with reasons (Table B)

		Relative Attrition					Absolute Attrition					
Graduating Cohort	Cohort Enrollment at the Time of Matriculation	Academic Reasons	Personal Reasons	Transfer to Another DVM	Total Relative Attrition	Percent Relative Attrition	Academic Reasons	Personal Reasons	Total Absolute Attrition	Percent Absolute Attrition	Total Attrition	Percent Attrition
2021	95	4	0	0	4	4.2%	0	0	0	0	4	4.2%
2020	92	1	1	0	2	2.2%	3	1	4	4.3%	6	6.5%
2019	90	0	0	0	0	0	1	1	2	2.2%	2	2.2%
2018	85	0	3	1	4	4.7%	1	4	5	5.9%	9	10.6%
2017	86	1	3	1	5	5.8%	2	1	3	3.5%	8	9.3%
Total	448	6	7	2	15	3.3%	7	7	14	3.1%	29	6.4%

The attrition data was analyzed using an Exact Cochran-Armitage Trend Test to evaluate for linear change in the rate of attrition. No significant trend in the change in attrition over time, from 2017 to 2021, was detected for personal reasons (p=0.18), academic reasons (p=0.60), or for personal and academic reasons (p=0.15).

11.2.b. Employment rates of graduates (within one year of graduation) (Table C)

Graduating Class	Total # Graduates	# Employed in Profession	# in Advanced Clinical Training	# in Advanced Academic Training (Masters/PhD)	Percent Employed in Profession
2017	81	81	12	2	100%
2018	82	82	16	4	100%
2019	91	89	19	1	98%
2020	87	87	8	4	100%
2021	91	91	17	0	100%

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

Faculty and staff satisfaction surveys are conducted annually by MSU to measure satisfaction with university programs and leadership. In addition, CVM periodically conducts faculty and staff satisfaction surveys to gather information on topics including work environment, facilities and equipment, information resources and student preparedness entering, during and exiting our curriculum. Additional topics focus on satisfaction with college communication, organizational leadership, mission, and commitment to quality.

The surveys (73 questions for faculty, 35 questions for staff) provide information specifically related



to the maintenance and efficiency of labs/classrooms/teaching areas, environmental safety and hazards, availability of equipment and supplies, and faculty and staff workloads. We also ask faculty to directly assess each of the AAVMC Entrustable Professional Activities for our graduates. In 2020, 90.9% of faculty strongly agreed or agreed that "With limited/no supervision, the average MSU CVM graduating student is competent to gather a history, perform an examination, and create a prioritized differential diagnosis list when presented with a routine veterinary patient" (only 3.64% disagreed). House officers are also surveyed to gauge their perceptions of the clinical resources and facilities, teaching/learning environment, and the aptitude with which students leave our program. It is evident from survey results that the house officers believe that CVM students receive adequate training and interaction with faculty, adequate opportunities to interact with clients, and are exposed to adequate caseload and patient care. Ninety-two percent of house officers who responded said that students met or exceeded expectations with the following statement: "The overall assessment of student preparedness for veterinary practice for students at the time of graduation." Survey results are shared and considered when making programmatic changes and improvements.

11.2.d. Additional assessment that might assist the college in benchmarking its educational program.

Additional assessments used to assist the College in benchmarking educational programs include NAVLE scores, average percentage of items correct by NAVLE content category, job placement rates, placement rates into internship/residency programs, and starting salaries.

CVM students' performance on the NAVLE is compared with students from other accredited colleges of veterinary medicine. The mean NAVLE score for MSU CVM students has been consistently above the national average for the past five years:

	2016	2017	2018	2019	2020	2021
MSU CVM Average MSU CVM	526	516	527	535	508	518
National Criterion Group Average	513	509	509	507	503	501

The percentage of NAVLE items correct within specific content categories is monitored over time (see Appendix Standard 11) and indicates where MSU CVM students perform above average, at the average, or below average. This information is shared with the curriculum committee and used as part of their curriculum assessment efforts.

MSU CVM is one of seven North American colleges of veterinary medicine with a successful matching rate of greater than 70% for internships and residencies over the past nine years (overall, MSU CVM has the fifth highest average cumulative match rate at 72%).

VIRMP Matching Rates (Percent): MSU-CVM vs National Average:

	2018	2019	2020	2021
MSU CVM	72.2%	80.0%	75.0%	70%
National Average	67.0%	70.1%	72.1%	69%

Average Starting Salaries for MSU Graduates Compared with National Average:

	2017	2018	2019	2020	2021
MSU CVM	\$67,243	\$74,023	\$74,138	\$82,422	\$88,807
National Average	\$61,709	\$65,992	\$70,128	\$74,844	\$80,485

11.3. Institutional outcomes.

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

The Mississippi Legislature has shown consistent support for the MSU CVM. In addition, the College's clinical caseload continues to increase and provides excellent learning opportunities for students.



Organizational structure of both the University and College are adequate and provide the College with substantial flexibility in meeting its education mission. The CVM Office of Academic Affairs provides direct support to the faculty and the administrative assistant for the associate dean for academic affairs provides clerical support for the office. The academic affairs manager has bachelor's and master's degrees in secondary science education, Master of Workforce Education Leadership, and an MBA. This individual supervises a staff of four. The assistant academic affairs manager has a Bachelor of Arts in communication with an emphasis in public relations and is responsible for tracking clinical procedures as students progress through the curriculum. One staff member is assigned to each of the four years in the DVM curriculum to assist faculty involved with student instruction. The staff help prepare examinations, assist in examination administration, and provide the faculty with statistical reports on each examination in Phase 1 of the curriculum. The staff distribute the Phase 2 student evaluation forms electronically to faculty and house officers for grade input and subsequently release the grades to the students, allowing the College to measure, document, record, analyze, and distribute assessment and evaluation activities throughout the DVM program. The staff are also responsible for generating the Phase 2 student schedules of required clinical rotations and elective experiences. A staff member coordinates the off-site educational experiences, including specialty practice and academic externships, advanced clinical rotations at other academic institutions, and research-related directed individual study. Direct support for laboratories associated with Phase 1 classes and Phase 2 elective courses is provided by the multidisciplinary laboratory (MDL) coordinator, who holds a Bachelor of Science in nursing, and her staff. The MDL staff plan, organize, set-up and disassemble each of these laboratories. They are also resources for students participating in these laboratory experiences.

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

The CVM uses the AAVMC's Comparative Data Survey to benchmark with other regional CVMs and others with similar class sizes but without medical schools on their campuses. Data compared include faculty numbers, caseload, hospital revenue, salaries, diversity, and extramural research expenditures. Differences among colleges must be considered when evaluating data, such as those that do not have the state diagnostic laboratory as part of their colleges.

In addition, surveys are conducted periodically to assess the faculty and staff perception of adequacy of resources and their satisfaction of student learning. Results are monitored over time.

The College is currently accredited by AAHA, AAVLD, AAALAC and CVTEA.

11.3.c. If your program assesses other outcomes, briefly describe the results.

Scholarly activity of faculty is assessed during the annual evaluation process, and includes documentation of unique peer-reviewed publications, abstracts, book chapters, patents, research grant support, graduate student success, and awards received. The annual Dean's Pegasus Awards Program recognizes and rewards faculty for excellence in teaching, research, and service (recipients are selected by the faculty). Students select the recipient of the annual Zoetis Distinguished Teacher Award. The DAFVM also recognizes and rewards faculty, providing cash awards for outstanding faculty in five categories. Other measured outcomes valuable to the educational process include publications in educational journals and presentations at education-based conferences.

Faculty teaching is evaluated by students (for each course) and through peer evaluation. This information is part of the faculty member's annual evaluation process with their department head. Faculty members are referred to the MSU Center for Teaching and Learning to improve teaching skills and methods when needed.

Student satisfaction is measured many ways, including through course evaluations that are reviewed by the instructors, course leader, and department heads. These evaluations are also used by the curriculum committee during its regular curricular review process. Student satisfaction is also measured through exit interviews, an anonymous electronic "comment box" available to students, and regular class meetings with Years 1 and 2 students. Additionally, class officers meet with the associate dean for academic affairs during each semester to provide input into wellness programs, student activities, and policies that may have an impact on their learning and overall success. The student satisfaction survey includes questions related



to teaching, cafeteria, library, equipment, student support services, facilities, and a general information section. Faculty and staff perceptions of teaching resources are assessed through satisfaction surveys.

CVM administrators are evaluated annually by the College faculty and staff, and the University conducts an in-depth 360-degree review of CVM administrators (dean, department heads, associate, and assistant deans) every three years.

The associate dean for administration is charged with monitoring progress on the MSU CVM Strategic Plan, and this information is reported at faculty meetings. The dean meets monthly with the provost and twice monthly with the vice president of DAFVM. He also meets with the provost and other upper university administration each summer and provides a progress report on the strategic plan and academic programs. The dean then presents this information with time for questions and answers at a faculty meeting. Faculty and staff satisfaction surveys were conducted in most recently in 2020. Student satisfaction surveys are conducted annually, and graduating student exit interviews are conducted each year just before graduation. Surveys of graduates one year following graduation and employer and externship mentor surveys are conducted to assess the effectiveness of the DVM education program. The Animal Health Center (AHC) conducts client and referring DVM satisfaction surveys on all cases, and diagnostic laboratory satisfaction surveys also are conducted. Data collected from all surveys are brought to CVM administration, administrative cabinet and, where applicable, to the curriculum committee and are used in the decision-making process.

11.4. Describe how outcomes findings at the student, programmatic, and institutional level are used by the college to improve the educational program (give examples).

Outcomes from the various assessment tools are evaluated and discussed within several groups or committees, i.e., the curriculum committee and the MSU CVM Cabinet, before making programmatic changes. Each year, following Year-4 student exit interviews and graduating student satisfaction surveys, data and information are collated into a document that is shared with cabinet, relevant course leaders, department heads, and certain individual faculty as needed. Also, clinical service areas identified in the exit interviews meet with administrators to discuss comments provided by the students. As an example, student surveys and course evaluations indicated concerns with the amount of after-hours patient care required of students on the neurology rotation. As a result, an additional neurology intern was hired to assist students with patient care and enhance student learning. Input received from student surveys and exit interviews indicated that Year-2 students would benefit from more time off to support student wellness. Following further investigation by the curriculum implementation task force and the clinical psychologist, the schedule was adjusted to permit all Year-1 and Year-2 students a full afternoon off each week. Also, the testing schedule was adjusted to ensure that students have no more than two tests in any one week and all exams fall on consistent days. After course evaluations of Veterinary Neuroscience indicated that more “clinically relevant” information was needed, the course leadership was transferred from a professor with a research focus to one of the clinical neurologists. Subsequent course evaluations have improved significantly. Additional examples of how outcomes findings have been used to improve the educational program are provided in 11.1.d.





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