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Cover Sheet for In-State Institutions
New Program or Substantial Modification to Existing Program

Institution Submitting Proposal	University of Maryland Eastern Shore

Each action below requires a separate proposal and cover sheet.

- (●) New Academic Program
- ( ) New Area of Concentration
- ( ) New Degree Level Approval
- ( ) New Stand-Alone Certificate
- ( ) Off Campus Program
- ( ) Substantial Change to a Degree Program
- ( ) Substantial Change to an Area of Concentration
- ( ) Substantial Change to a Certificate Program
- ( ) Cooperative Degree Program
- ( ) Offer Program at Regional Higher Education Center

Payment Submitted: ( ) Yes ( ) No

Payment Type: (●) R*STARS # JE351041 ( ) Check # JE351041

Payment Amount: 850

Date Submitted: 9/12/2023

Department Proposing Program	School of Veterinary Medicine	
Degree Level and Degree Type	Doctoral	
Title of Proposed Program	Doctor of Veterinary Medicine	
Total Number of Credits	110	
Suggested Codes	HEGIS: 1218.00	CIP: 1.8001
Program Modality	( ) On-campus ( ) Distance Education (fully online) (●) Both	
Program Resources	(●) Using Existing Resources ( ) Requiring New Resources	
Projected Implementation Date (must be 60 days from proposal submisison as per COMAR 13B.02.03.03)	(●) Fall ( ) Spring ( ) Summer	Year: 2026
Provide Link to Most Recent Academic Catalog	URL: http://catalog.umes.edu/content.php?catoid=25&navoid=763	
Preferred Contact for this Proposal	Name: Moses T. Kairo	
	Title: Professor and Dean	
	Phone: (410) 651-6072	
	Email: mkairo@umes.edu	
President/Chief Executive	Type Name: Heidi M. Anderson	
	Signature: Heidi M Anderson	Date: 10/15/2023
	Date of Approval/Endorsement by Governing Board:	

Revised 1/2021

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Proposal for New Graduate Degree Program Doctor of Veterinary Medicine within a New School of Veterinary Medicine

The University of Maryland Eastern Shore (UMES) proposes to establish a new Doctor of Veterinary Medicine (DVM) Program as part of a comprehensive veterinary sciences program within a new School of Veterinary Medicine. The proposed program is integral to UMES' Land Grant Mission of teaching, research and extension with a focus on agriculture and the pet industry. The program links directly to various human health-focused programs at UMES, and the overall national approach to one health especially as the interconnection of people, animals, and the environment becomes more important against a background of an expanding human population. The program will serve interested students from a range of majors and it is expected to attract students from across the state. As only the second such program at an HBCU, it will be particularly attractive to underrepresented groups and thus fill an important niche at a time when there is a critical need to expand and diversify the workforce.

A. Centrality to Institutional Mission and Planning Priorities:

1. Provide a description of the program, including each area of concentration (if applicable), and how it relates to the institution's approved mission.

The University of Maryland Eastern Shore (UMES) is proposing to offer a new Doctor of Veterinary Medicine (DVM) degree program. The program is designed based upon the requirements of the accrediting body for the profession - the American Veterinary Medical Association's (AVMA) Council on Education (COE) – and will provide a pool of diverse, highly skilled[1] practitioners to serve the animal healthcare needs of residents in Maryland and beyond. Importantly, UMES' DVM program has been designed to be innovative and future-focused in a number of ways while satisfying COE requirements. It provides a more accelerated program (within the mandatory 9 semesters) with state-of-the-art curriculum, the opportunity for students to gain diverse professional experiences at practices and animal-related institutions (public and private) across the country via distributive clinical rotations, an emphasis on multicultural clinical skills, and technology capabilities to prepare professionals for the future workplace.

The costs for building, launching and operating a veterinary program have been reduced significantly over the past 10-15 years due to efficiencies in key areas such as: virtual didactic course delivery, distributive clinical rotations (made even less expensive due to commitment from the largest national practices to provide rotations for UMES at no cost), use of highly talented adjunct faculty (a growing trend in new and existing programs), and use of the 3 calendar-year (still 9 semesters) model that reduces the on-campus cohort to 2 classes

[1] https://www.marsveterinary.com/tackling-the-veterinary-professional-shortage/

instead of 3 (reducing infrastructure needs and size of faculty/staff). The UMES program described in this document incorporates each of these features.

The proposed DVM program addresses important skills gaps in the employment market both in Maryland and nationally. Several studies have reported on the shortage of qualified veterinarians to serve both pet owners and those with large animals in the state and broader region. The [1]most recent study by former Florida Veterinary School Dean James Lloyd, who is a veterinarian with a PhD in Economics, comprehensively explains the scope and underlying factors for these shortages. These shortages are exacerbated by the growth in pet ownership during the Covid-19 pandemic with a nationwide spike in pet adoptions across the US. Corporate practices now offer large signing bonuses and other perks to attract talent and report having to turn away clients due to staff shortages. One of consequence of the Covid-19 veterinary boom was pressure it applied on scarce talent necessary to serve rural and semi-urban areas of the country. The net result is that there are massive shortages of trained professionals to serve both urban and rural markets with adverse impact on pets, large animals, animal owners, the agriculture sector, and population health more broadly. New veterinary programs are crucial, especially since only one new veterinary school opened in the 30 years between 1985 and 2014 when the US population doubled. Millennial and Generation Z households now own 50% of the companion animals in the United States, and these cohorts want pet healthcare delivered at the same quality, scale and convenience as human healthcare. This has created significantly greater demand for veterinarians to lead such care delivery.

The UMES DVM program will advance diversity across the field of veterinary medicine, which has lagged behind all other professions. This is a high priority for UMES as an 1890 land-grant HBCU. The promotion of diversity and expansion of educational opportunities for African American and other minority students is central to our mission. The veterinary medicine profession has been racially homogenous for a long time – about 90% of practitioners are white. The current representation of Blacks in the profession is less than 3%. This program will be only the second such offering at an HBCU, and the only public HBCU institution.

The UMES DVM program has been designed to address structural barriers to admission and entry into the profession of veterinary medicine faced by minority and socio-economically disadvantaged students. The program may be completed in 3 calendar years by those who enter after completing a BS degree – students complete required and elective courses in semesters 1-6, and the clinical rotations are completed in Semesters 7, 8 and 9.

The proposed program offers an accelerated, affordable program in an area of substantial market demand for Maryland residents and non-resident students, and has the potential to expand educational opportunities, fill equity gaps, promote upward social mobility, and increase diversity in the profession of veterinary medicine.

The program is consistent with UMES' mission and vision. As a land-grant HBCU, the university offers "distinctive learning, discovery and engagement opportunities in the arts

and sciences, education, technology, engineering, agriculture, business and health professions."

The UMES mission statement reads:

> *As a public 1890 land-grant Historically Black University that embraces diversity, UMES is committed to serving first-generation and underserved students and providing educational, research, and community engagement opportunities to transform the lives of its students who will impact the state, region, and the world.*

As an HBCU, providing access to historically disadvantaged populations is critical to UMES' mission. Among the major professions, veterinary medicine exhibits a systemic lack of diversity. The American Association of Veterinary Medicine Colleges (AAVCM) conducted a recent study into the racial gaps in the profession and found that, 87 percent of 2018 veterinary school applicants were women and approximately 76 percent were White.'[2] It reported that a mere 5% of applicants were Black.[3] The study concluded that there was "a very real need to reexamine admissions processes. Schools and colleges of veterinary medicine should objectively and rigorously review their admissions processes and reevaluate those elements, such as the number of veterinary, animal, or total experience hours, that may be a source of inherent bias against particular groups of applicants." The proposed UMES DVM program answers this call.

The new DVM program links directly to various agriculture and human health-focused programs at UMES and supports the national approach to 'One Health' as the mutual dependency of people, animals, and the environment becomes more important. The establishment of a DVM Program at UMES should accelerate the development of several complementary programs which are also in high demand, specifically, a B.S. in Veterinary Technology and M.S./Ph.D. in Biomedical Sciences. The projected demand for veterinary technicians with a B.S. is expected to grow by 20% at the national level and 8.1% in Maryland.

2. Explain how the proposed program supports the institution's strategic goals and provide evidence that affirms it is an institutional priority.

UMES has prioritized programs in the health sciences for several years as evidenced by its accelerated pharmacy program, physical therapy program, and physician assistant programs. The DVM program expands UMES' healthcare focus into another area with workforce needs, diversity/access deficits.

The program also furthers the 2020 UMES Strategic Plan, specifically:

[2] https://www.insightintodiversity.com/research-sheds-light-on-diversity-and-bias-in-veterinary-school-admissions/
[3] Id.

Goal 4: Meet the educational needs of the state of Maryland with high-quality and innovative academic programming.

Goal 6: Achieve and maintain national eminence and global impact.

UMES is currently in the process of adopting its new Strategic Plan 2023 "Soaring to Excellence: From Aspiration to Realization." The plan is organized under five Priority Areas:

1. Academic Excellence and Innovation;
2. Access, Affordability, and Achievement;
3. Workforce and Economic Development;
4. Research and Community Engagement; and
5. Diversity, Equity, and Inclusion.

There are two elements under Priority Area 1 which speak directly to the proposed DVM program:

1.1. Attract, retain, and graduate more aspiring students who will become leaders in their chosen disciplines at the undergraduate and graduate levels from domestic and international markets;
1.2. Pilot innovative pathways for working professionals that respond to workforce demands.

Priority Area 2 contains two elements that are tied to the new DVM program:

2.1. Increase enrollment to improve the university's efficiency and scalability;
2.2 Improve transfer pathways for students into UMES.

One of the signature features of the new DVM program is the ability of students who have commenced an undergraduate degree program or an associate degree program at another higher education institution to gain entry into the accelerated combined BS/DVM and complete it with 6/7 years. Given that raising 4-year degree attainment is a goal of Maryland, this newly created avenue for students to enter a highly valuable profession while saving time and money should attract transfer students from community colleges and other institutions. These other institutions will include HBCUs with which UMES has a long history of collaborative and positive relationships (see letters expressing interest to collaborate in Appendix 2). UMES will explore the possibility of allocating as much as 50% of each entering DVM class to qualified students from a group of HBCUs (see example letters of support in Appendix II). As such, the new DVM program is a direct implementation of priority 2.2 in the UMES Strategic Plan 2023.

The new DVM program is the signature initiative under Priority 3: Workforce and Economic Development. Specifically, the following elements under Priority Area 3:

3.1. Diversify and strengthen Maryland's knowledge workforce by expanding the pipeline of underrepresented minority students entering critical workforce fields (STEM, cyber, healthcare, education, etc.)

3.2. Expand the number of graduates in fields critical to Maryland's economy: STEM, cyber, healthcare, etc.

3.4. Develop a broad, data-informed academic portfolio reflecting the needs of students and employers.

3.5. Deliver graduates with well-rounded backgrounds and the credentials needed to enter the workforce.

3.7. Become a leader for partnerships that match state and regional needs.

The proposed DVM program will provide Maryland residents with access to the high-quality credentials and training necessary to enter the profession of veterinary medicine. The accrediting body AVMA COE requires programs to be highly rigorous and geared towards attaining a minimum pass rate of 80% in the professional licensing examination. As UMES graduates successfully pass the North American Veterinary Licensing Examination (NAVLE) and enter the profession, it will enhance the reputation of the university, re-enforcing the vision of UMES to be the "preeminent public Historically Black University that is recognized for leadership in student-centered education, exceptional research, innovation, and inclusiveness."

The UMES DVM program's fundamentals represent a combination of strong basic sciences, pre-clinical training in all facets of modern veterinary medicine, hands-on examination, anatomy, communications and surgical training, and intensive immersion in core and elective rotations through the distributive clinical year. Everything is designed to produce a day one practice-ready veterinarian upon graduation, as well as the foundation for graduates seeking employment outside of the practice setting or an academic career through internships and residencies.

3. Provide a brief narrative of how the proposed program will be adequately funded for at least the first five years of program implementation. (Additional related information is required in section L.

The DVM program will achieve positive net income in first year not including initial startup costs. The third year represents a full cohort of 3 classes of approximately 100 students each. Only 2 of these three cohorts will be on campus and receiving instruction and services. The third year cohort will be in rotations throughout the mid-Atlantic, eastern and southern United States and beyond, requiring only minimal support from the UMES team. UMES will provide funding infrastructure and initial operations for the new program as a strategic priority. The university plans to allocate space adjacent to the new Pharmacy building to enable the shared use of facilities such as labs and classrooms, and to promote inter-

professional interactions and collaboration. UMES will allocate resources for the hiring of a dean and new faculty in this discipline.

UMES will receive significant financial support from large organizations in the animal health sector. Based upon work by a UMES consultant, preliminary commitments will be documented and are expected to include direct donations valued at $6-10 Million, donation of clinical rotations (normally charged with a fee back to the veterinary school) with a value for operating budget in range of $500,000-$750,000 annually, plus curriculum delivery donated by international experts with annual operating value in range of $300,000-$500,000. UMES has submitted a five year plan for facilities improvement to USDA-NIFA which includes resources to support development of facilities to support the program. The award letter for the first $898,000 of $4.5 million has been received.

4. Provide a description of the institution's a commitment to:

a) Ongoing administrative, financial, and technical support of the proposed program

UMES is fully committed to supporting the DVM program and the discipline of veterinary medicine. The university plans to create a new School of Veterinary Medicine with the DVM as its centerpiece. It will recruit a dean and dedicated faculty and staff who will be located in the new school.

At the initial stage of development, the program will be housed within the existing structure under the Provost's Office with support from the Schools of Agricultural and Natural Sciences, and Pharmacy and Health Professions. This will enable the swift development of policies and procedures and provide a high level of institutional support at the nascent stage of the new school. A multi-disciplinary leadership team will shepherd the initial stages of program development in line with the University's internal rules and processes and the accreditation requirements stipulated by the COE. This leadership team plus consultant will recruit a dean and founding faculty to lead the processes for accreditation, the site visit, and the like. The dean and founding faculty will work in close alignment with the UMES marketing and admissions teams to communicate with potential students and recruit the inaugural class. The dean and faculty will also work with allied units such as Information Technology (IT), the library, student services, facilities, etc., to make adequate provisions for the successful launch of the new program.

In summary, UMES will ensure that adequate ongoing administrative and other support are provided to launch this program in 2026-27.

b) Continuation of the program for a period of time sufficient to allow enrolled students to complete the program.

UMES proposes to add this program as a regular offering in its catalog and will ensure that all students admitted into the program are allowed to complete the program. As noted previously, student success, the preparation of graduates who will serve the workforce needs of the state, and the promotion of diversity and enhanced access to high quality

education to underserved populations are integral to UMES' mission. This means that the proposed DVM program is expected to be a signature program in UMES' portfolio of academic degree offerings.

B. Critical and Compelling Regional or Statewide Need as Identified in the State Plan:

1. Demonstrate demand and need for the program in terms of meeting present and future needs of the region and the State in general based on one or more of the following:

a) The need for the advancement and evolution of knowledge

It is now widely accepted that the health of humans is closely linked to the health of animals and the shared environment which has led to the adoption of a 'one health approach.' This approach recognizes that many factors have, and continue to change the interactions between humans, animals, plants and the environment. For instance, there are increased contacts between humans and domestic and wild animals providing greater opportunities for communication of diseases. This is exacerbated by increased and rapid movement of people and commodities across large geographic spaces. Other factors such as climate change also play a significant role. Against this background, the proposed DVM Program is integral to UMES' Land Grant Mission of teaching, research and extension with a focus on agriculture and the pet industry. It will engender an enabling environment for the enhanced generation and application of new knowledge. Furthermore, it links directly to various human health-focused programs at UMES, and the overall national approach to one health. Indeed, the establishment of a DVM Program at UMES is forward looking as it will set the foundation for the subsequent development of several complimentary programs which are also in high demand. Specifically, a B.S. in Veterinary Technology and M.S./Ph.D. in Biomedical Sciences.

b) Societal needs, including expanding educational opportunities and choices for minority and educationally disadvantaged students at institutions of higher education

The proposed UMES DVM program will play a critical role in meeting present and future needs for veterinarians in the State. It will provide qualified practitioners to serve clients in underserved areas and address longstanding shortages that are adversely impacting animal and human health.

Meeting demand: There is likely to be substantial demand for the new UMES DVM program based on national trends. According to the AAVMC, there were 10,834 applicants seeking admission into DVM programs in 2022.[4] This showed an increase of 5.5% compared to the previous year and represents strong and sustained applicant demand for several years in a row. Notably, the acceptance rate into DVM programs nationally is 10-15%, meaning that a

[4] https://todaysveterinarybusiness.com/veterinary-school-applications/#:~:text=Today's%20Veterinary%20Business%20Staff&text=Veterinary%20medicine%20remains%20a%20popular,the%2010%2C273%20applicants%20last%20year.

very large number of applicants are unable to secure places. In particular, the limited number of places has an adverse impact on Maryland residents because there are no veterinary schools in the state currently aside from the Virginia, Maryland College of Veterinary Medicine (VMCVM) at Virginia Tech, which is expected to serve three states: Virginia, West Virginia, and Maryland residents. Critically, VMCVM is located in Virginia, and has an entering class of 128 students. While the agreement between Virginia Tech and University of Maryland College Park guarantees 30 admission slots, this has not translated to increased opportunities for students coming from other schools. Clearly, Maryland residents are not adequately served by this limited provision.

Advancing diversity: As noted by a recent article in the Baltimore Sun, veterinary medicine is populated "statistics show, … [is mostly] socioeconomically privileged white women with a love for animals. Countless other individuals, who would provide outstanding care and whose research efforts would benefit all of society, may never consider veterinary medicine."[5]

This racial and gender mismatch in the veterinary medicine profession is ill-suited to the demographics of Maryland, which is the most diverse state on the East Coast. As seen from the US Census data below (Figure 1), about 31% of the population identifies as Black. The opening of a new DVM program in Maryland is likely to enhance diversity in the veterinary medicine profession.

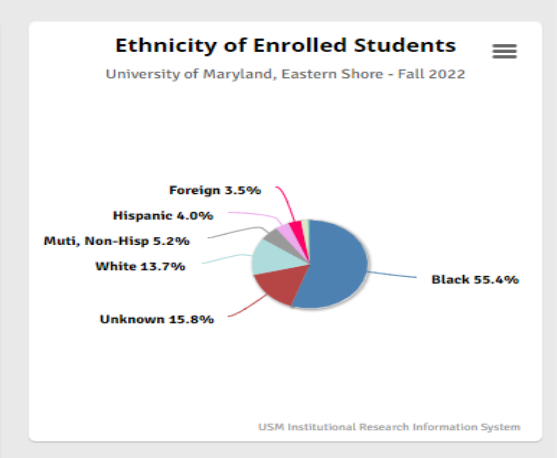
Figure 1. Excerpt of US Census data for Maryland in 2022

Population Estimates, July 1 2022, (V2022)	6,164,660
Population Estimates, July 1 2021, (V2021)	6,174,610
Persons under 18 years, percent	22.1%
Persons 65 years and over, percent	16.3%
Female persons, percent	51.3%
Race and Hispanic Origin	
White alone, percent	57.8%
Black or African American alone, percent (a)	31.4%
American Indian and Alaska Native alone, percent (a)	0.7%
Asian alone, percent (a)	6.9%
Native Hawaiian and Other Pacific Islander alone, percent (a)	0.1%
Two or More Races, percent	3.1%
Hispanic or Latino, percent (b)	11.1%
White alone, not Hispanic or Latino, percent	49.0%

[5] Leah Fine, *The veterinarian shortage starts in the pipeline to veterinary school*, The Baltimore Sun, Aug 1, 2022, available at, https://www.baltimoresun.com/opinion/op-ed/bs-ed-op-0801-veterinarian-shortage-20220801-ey2ejpo7ovaqfpyjq3hnzvbioa-story.html

Source: US Census 2022.

Figure 2. UMES student distribution by ethnicity (Fall 2022)



As shown, 55% of UMES students identify as Black. The proposed new program is likely to enroll students with a similar racial profile, thereby advancing racial diversity in the profession of veterinary medicine.

c.) The need to strengthen and expand the capacity of historically black institutions to provide high quality and unique educational programs

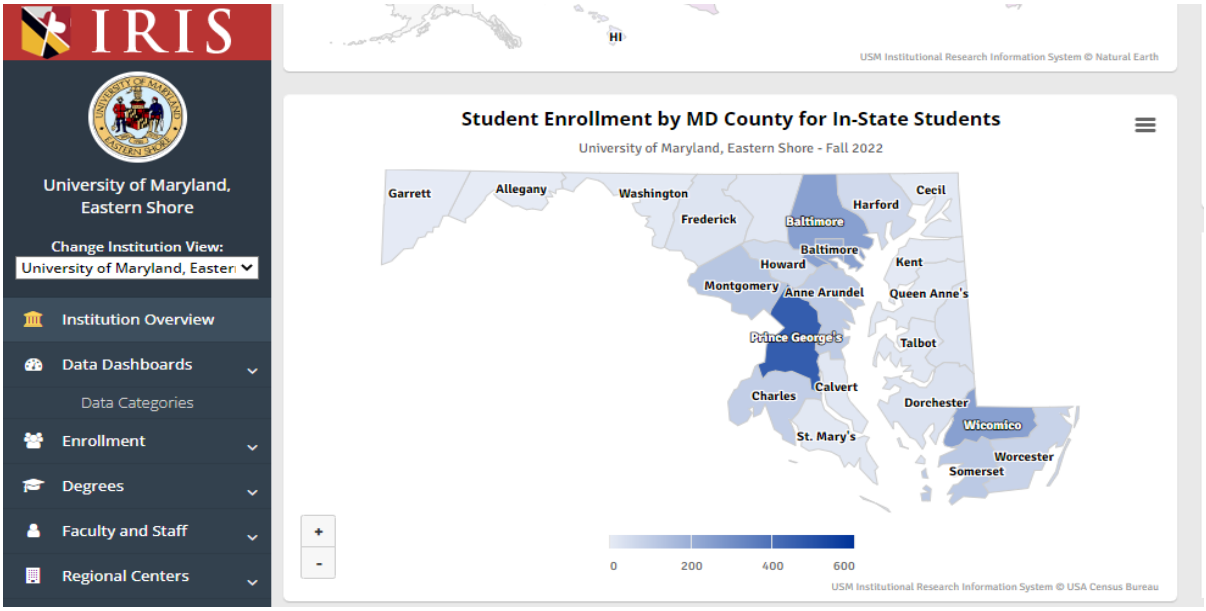
The proposed UMES DVM program will expand educational opportunities and choices for African American students in Maryland and nationally. Currently, the only HBCU offering such a program is Tuskegee University. Tuskegee University's tuition for the DVM program is currently listed as $20,585 for the Fall and Spring semesters (the reported cost for a full 4-year program of $187,129 with fees is $313,053[6]) and UMES proposed average tuition and fees rate is $52,500 per year, for a 3-year total cost of $157,500. African American and other minority students from Maryland will benefit from having an affordable alternative within the state at an established HBCU.

Aside from racial and gender diversity deficits, the data shows that the majority of entrants into the profession wish to work in urban areas. This leaves significant gaps in the supply of veterinarians in rural areas.

UMES draws its student body primarily from rural or semi-urban counties (Figure 3). It is likely that this will translate into the new DVM program as well. Aside from contributing to the geographic diversity of new entrants into veterinary medicine, the proposed new program is also likely to advance the diversity of outcomes – a higher percentage of UMES graduates are likely to work in rural counties due to their backgrounds. This will address severe shortages of veterinarians in rural areas of Maryland and other states.

[6] https://www.aavmc.org/becoming-a-veterinarian/funding-your-degree/cost-comparison-tool/

Figure 3. Origin of UMES students by county (Fall 2022)



2. Provide evidence that the perceived need is consistent with the Maryland State Plan for Postsecondary Education.

The proposed new DVM program is consistent with the 2022 Maryland State Plan for Postsecondary Education. Specifically, the program advances the three pillars below:

Access: *Ensure equitable access to affordable and high-quality postsecondary education for all Maryland residents:*

The new DVM program offers Maryland residents access to an affordable high-quality professional degree in a field that is in high demand regionally and nationally. This is consistent with components of Priority 1 and 4 of the 2022 Maryland State Plan for higher Education. Given there are currently only 34 institutions offering a Doctor of Veterinary Medicine program nationally, access to these programs is inequitable. Students who experience economic and educational disadvantages have a lower chance of success in gaining admission into this limited pool of places. It has been reported that the requirement for applicants to possess hundreds of hours of work experience acts as an entrenched barrier to those from lower socio-economic strata as they do not have the means to accumulate such experience, which is often either lowly paid or unpaid. Further, the lack of a geographically proximate program acts as a barrier to those with limited economic resources as enrolling in an out-of-state degree program entails higher additional costs. It is likely that applicants from Maryland who are unable to gain admission into VMCVM and do not have the financial wherewithal to pursue studies out of state have to sacrifice their aspirations of becoming veterinarians.

Success: *Promote and implement practices and policies that will ensure student success:*

The implementation of the DVM program will be consistent with existing policies at the university which have student success as a central pillar. The program will offer an innovative curriculum that is consistent with the Council on Education of the American Veterinary Medical Association. All, the requisite learning tools to guide students to successful degree completion will be provided. State of the art laboratories and other facilities will be utilized. Through strong linkages with industry and other partners, students will also be provided with experiential learning opportunities, ensuring that graduates will be work ready. By maintaining a commitment to high-quality postsecondary education, the program is consistent with Priority 5 of the Maryland State Plan for Higher Education.

Innovation: *Foster innovation in all aspects of Maryland higher education to improve access and student success:*

Like other DVM programs, the UMES program will comprise of nine semesters spread over three calendar years. Thus, graduates will enter into the marketplace one year earlier than traditional 4-year programs. This innovative and attractive approach does not sacrifice the curricular integrity as required by the CoE of AVMA. The program will foster a number of innovative approaches to ensure that graduates are ready for the workplace.

C. Quantifiable and Reliable Evidence and Documentation of Market Supply and Demand in the Region and State:

1. Describe potential industry or industries, employment opportunities, and expected level of entry (*ex: mid-level management*) for graduates of the proposed program.

The proposed DVM program will produce graduates who will enter the market as veterinary medical practitioners. Entry into the profession is pursuant to meeting educational requirements specified by the COE and passing the licensing examination, NAVLE. The scale of the shortage of veterinarians is such that students may be expected to have multiple job offers. Distributive clinical rotations programs are noted for the common practice of students receiving job offers from participating practices who observe the students' skills in action.

2. Present data and analysis projecting market demand and the availability of openings in a job market to be served by the new program.

The proposed new program will help attenuate skills gaps in the job market for veterinarians. According to the Bureau of Labor Statistics, at the national level the employment of veterinarians is projected to grow 19 percent from 2021 to 2031, much faster than the average for all occupations, and 13 percent for Maryland from 2020-2030. Not surprisingly, the United States agriculture and pet industry faces a serious challenge due to the current and projected shortage of veterinarians.

Figure 4. Employment projections for veterinarians (Source: U.S. Bureau of Labor Statistics, Employment Projection Program

Occupational Title	SOC Code	Employment 2021	Projected Employment, 2031	Change, 2021-31	
				Percent	Numeric
Veterinarians	29-1131	86,300	103,100	19	16,800

According to the United States Department of Agriculture, 500 counties in 46 states reported a critical shortage of veterinarians in 2022. The demand for veterinarians to serve the pet industry in the highly urbanized metropolitan areas in Maryland and adjacent locales is expected to continue to grow. A similar high demand exists in rural farming communities where there is an acute shortage of large animal veterinarians. The data for Maryland (Figure 5) shows a very robust job market demand:[7]

Figure 5: Demand for veterinarians in Maryland

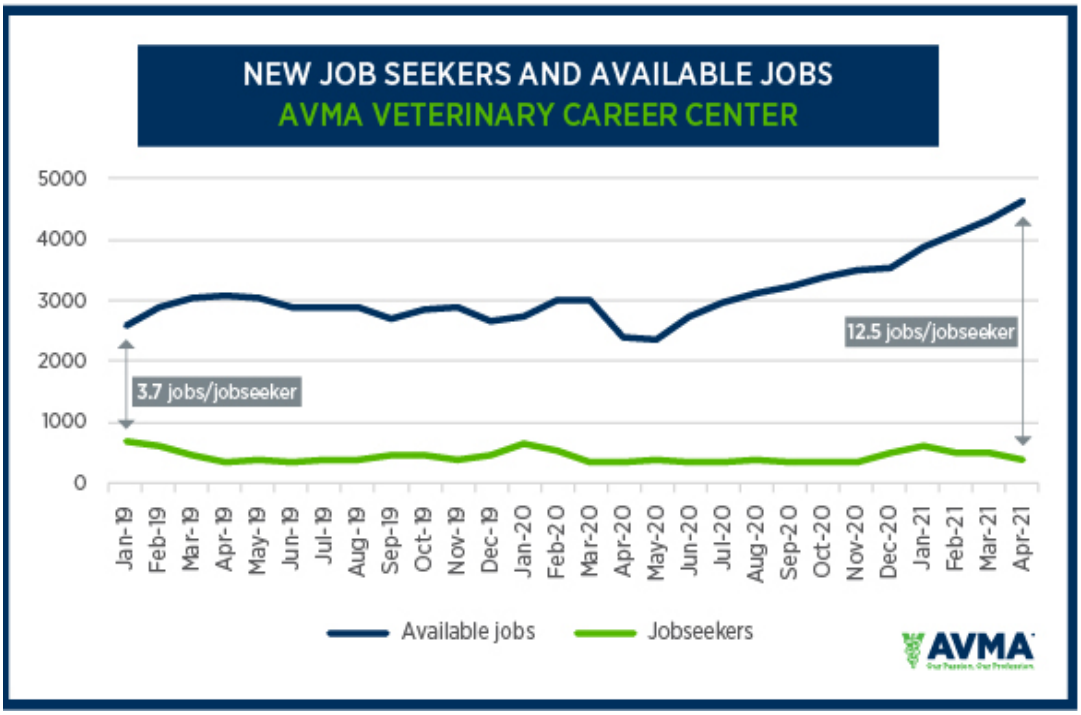
Occupation	2020	2030	Change	Percent Change
Veterinarians	1,959	2,206	247	12.61%

3. Discuss and provide evidence of market surveys that clearly provide quantifiable and reliable data on the educational and training needs and the anticipated number of vacancies expected over the next 5 years.

The Bureau of Labor Statistics projects about 4,800 openings for veterinarians each year and the employment change for 2012-30 at 16,800. As noted previously, there is a strong demand for veterinarians in the market and the industry projects a need for about 41,000 veterinarians by 2030. The chart below (Figure 7) produced by AVMA conservatively evidences the gap between supply and demand:

[7] Maryland Department of Labor projections 2020-30, available at https://www.dllr.state.md.us/lmi/iandoproj/maryland.shtml.

Figure 6. National job supply and demand projections veterinary careers (Source: AVMA[8])



The Atlantic magazine recently published an article about the shortage of veterinarians noting Corporate veterinary practices have recently started offering bonuses as high as $100,000 to vets who sign three-year contracts. But there is an underlying supply-and-demand problem. More Americans are acquiring pets, while the number of people going into the veterinary profession has not been keeping pace."[9] The piece also references the need for 41,000 veterinarians by 2030.

In a recent report, the Farm Foundation Journal bemoans the 'decline in rural food animal veterinarians' and says it has 'now reached such a critically low point that urgent action is required.' The report notes just '3-4% of new veterinary graduates have entered food animal-related practice over the past 20 years. … Without enough food animal veterinarians and reliable access to the services they provide, 3.7 million livestock jobs are at stake, as well as overall public health and food safety.'[10] The Farm Foundation calls for 'supporting schools by enhancing training opportunities and actively recruiting students from rural backgrounds.'

4. Provide data showing the current and projected supply of prospective graduates.

[8] https://www.avma.org/blog/veterinary-medicine-jobseekers-market
[9] Sarah Zhang, The Great Veterinary Shortage, The Atlantic, July 6, 2022, available at https://www.theatlantic.com/health/archive/2022/07/not-enough-veterinarians-animals/661497/
[10] https://www.farmjournalfoundation.org/_files/ugd/cfcaf3_a4daf753ad254d31a95ce13f47636e5d.pdf

As noted previously, there are only 34 veterinary medical programs in the United States currently. According to a recent research report by former Florida DVM Dean James Lloyd for Mars Veterinary Health, the world's largest provider of veterinary care and employer of veterinarians and a core partner for UMES, there are approximately 2,500-2,600 graduates entering the workforce as veterinarians in the US each year. Mars estimates that over 41,000 veterinarians will be needed over the next decade to meet the projected demand in 2030. Based on current numbers entering the workforce, Mars projects a shortage of 15,000 veterinarians in the US by 2030.[11]

To conclude, there is not a sufficient supply of qualified veterinarians to fill existing vacancies. Moreover, there is a substantial percentage of the qualified professional group exiting the field either due to retirement or for other reasons. In addition, the pet population in the US is growing with consequential implications for healthcare. The net result is both a current shortage and a projected gap of over 15,000 veterinarians by 2030. The proposed UMES DVM program can play a vital role in addressing this gap, in addition to contributing to important goals such as diversity across racial, rural, gender, and socio-economic dimensions.

D. Reasonableness of Program Duplication:

1. Identify similar programs in the State and/or same geographical area. Discuss similarities and differences between the proposed program and others in the same degree to be awarded.

The Virginia-Maryland College of Veterinary Medicine (VMCVM) formed in partnership between Virginia Tech and the University of Maryland is the only veterinary program within the broader region. However, it is located at Virginia Tech's campus in Blacksburg, VA. The program only admits 128 students currently and differs from the UMES program meaningfully in terms of research emphasis and large animal infrastructure/faculty/staff.

As a program to be accredited by the AVMA COE, there is likely to be some overall similarity between the VMCVM program and the new UMES DVM program because of the disciplinary accreditor's mandates for competencies to be possessed by licensed practitioners. However, there are substantial differences:

a. The UMES program can be completed in 3 years for entrants with a BS degree;
b. The UMES program allows those without a BS to complete a combined BS-DVM in 6 or 7 years.
c. The UMES program is likely to attract more diverse students and especially Black students;
d. The UMES program is likely to attract more non-urban students;
e. The UMES program is likely to produce more non-urban veterinarians.

[11] https://www.marsveterinary.com/tackling-the-veterinary-professional-shortage/

2. Provide justification for the proposed program.

There is just one HBCU currently offering a DVM program. Unsurprisingly, the veterinary medicine field is not diverse and about 90% of veterinarians identify as white. The proposed UMES program will help to diversify the profession by providing a pipeline of graduates from minority communities into the profession. In turn, the greater representation of minorities as veterinary practitioners will attract additional learners from these communities into the profession and change the current distortions in demographic representation.

The new UMES DVM will also provide Maryland residents, in particular African Americans and other minorities with additional educational opportunities and choices by creating an affordable pathway into an in-demand profession or further study and research in the veterinary sciences. Notably, UMES programs charge lower tuition fees compared to other programs, meaning that students will be able to graduate with lower debt.

The UMES program also facilitates the achievement of the important goal of socio-economic mobility and expanding economic opportunities for all sections of society. The median earnings of veterinarians in the US is about $103,000 and growing, and the debt-to-income ratio for veterinarians is low at 1.67:1. This means that enabling students from disadvantaged backgrounds to enter the profession will assist in achieving upward socio-economic mobility and reducing entrenched inequality.

E. Relevance to High-demand Programs at Historically Black Institutions (HBIs)

1. Discuss the program's potential impact on the implementation or maintenance of high-demand programs at HBI's.

UMES is an HBCU and this program will have a supportive impact on the maintenance of other programs, especially in agriculture, STEM and the health science fields.

F. Relevance to the identity of Historically Black Institutions (HBIs)

1. **Discuss the program's potential impact on the uniqueness and institutional identities and missions of HBIs**.

This has been addressed above in the section on alignment with mission and strategic plan. As an HBCU, the proposed DVM program is a critical part of advancing the identity and impact of UMES.

G. Adequacy of Curriculum Design, Program Modality, and Related Learning Outcomes (as outlined in COMAR 13B.02.03.10):

1. Describe how the proposed program was established, and also describe the faculty who will oversee the program.

The proposed DVM program will be housed in a newly established School of Veterinary Medicine. It was designed by faculty with expertise in the area with assistance from the Provost's Office and a UMES appointed consultant. A new Dean of the School of Veterinary Medicine and disciplinary faculty will oversee the program and its administration.

2. Describe educational objectives and learning outcomes appropriate to the rigor, breadth, and (modality) of the program.

UMES graduates from the DVM program are expected to demonstrate the following:

1. Fundamental knowledge of biological processes, critical thinking, research, and problem-solving skills to recommend effective treatment solutions as veterinarians with due regard for animal welfare, public health, legal, and ethical norms;
2. Ability to safely perform diagnostic, preventative, medical and surgical procedures for the health, welfare, and treatment of animals;
3. Ability to respond to emergencies as applicable to biosecurity and infectious diseases with due regard to the health and welfare of humans, animals, and the environment;
4. Ability to practice evidence-based veterinary medicine and critically analyze scientific literature to advance knowledge;
5. Ethical and professional conduct for veterinary practice within a complex and diverse society;
6. Effective communication skills incorporating a variety of technology tools with an understanding of the needs of diverse audiences.

3. Explain how the institution will:

a) provide for assessment of student achievement of learning outcomes in the program

Student progress will be measured through both formative and summative assessment and will include:

- Assessing written and oral student presentations, written assignments, and research projects.
- Evaluating student performance in exams, quizzes, and assignments.
- Performance assessments in small groups and individual exercise such as laboratory skills checks.
- During intensives, formative learning will be measured using a formal skills assessment checklist, which will align with the evaluative components of the clinical rotations to monitor summative mastery of critical skills.

- Performance records and evaluations at each 4-week rotation during the distributive third year.

b) document student achievement of learning outcomes in the program

Student achievement will be documented through grades provided to the Registrar by individual faculty overseeing each course. Determination of grades will follow the standards and protocols established by the faculty in the School of Veterinary Medicine which will be based on clear grading criteria including rubrics assessing achievement of learning outcomes and competencies. The grading scale and rubric for each course will be available to students as part of the syllabus.

4. Provide a list of courses with title, semester credit hours and course descriptions, along with a description of program requirements.

The University of Maryland Eastern Shore is proposing a 3-year program with 9 semesters, including the Fall, Spring, and Summer of each year. Semester 1 will start in the Fall of the first year. Graduation will take place at the end of the Summer of the third year. The first 6 semesters will be comprised of primarily didactic and laboratory courses. Both required and elective courses are offered during these 6 semesters. Semesters 7, 8, and 9 are the clinical rotations of this distributive model program based upon a collaborative partnership between community professionals and the veterinary school. The list of courses has not been finalized by veterinary faculty or Deans and will be reviewed multiple times before the first class of veterinary students arrive in 2026. The list of course offerings by Semester for Semesters 1-9 is given below. Details of the courses are provided in Appendix A.

Year 1 & 2 Summary

SEMESTER 1 (FALL)	
Core (Required) Courses	**Credits**
Building Adaptability and Academic Resilience	0.5
Veterinary Anatomy I	5.0
Veterinary Physiology	5.0
Veterinary Histology	1.0
Veterinarians & Animals in Society	0.5
Clinical Skills I	1.0
Applied Anatomy & Physiology	1.0
Professional Life Skills/Professional Identity	1.0
Medical Science	1.0
Total Core Credits	**16.0**

SEMESTER 2 (SPRING)	
Core (Required) Courses	**Credits**
Veterinary Anatomy II	4.0
Veterinary Parasitology	3.0
Evidence-Based Veterinary Medicine	1.5
Veterinary Immunology	2.5
Veterinary Virology	1.5
Bacteriology & Mycology	2.5

Epidemiology & Biostatistics	1.0
Clinical Skills II	1.0
Professional Life Skills II / Professional Identity	1.0
Basic Pharmacology	1.0
Total Core Credits	**19.0**

SEMESTER 3 (SUMMER)	
Core (Required) Courses	**Credits**
Veterinary Pathology	6.0
Clinical Pathology	3.0
Zoonotic & Transboundary Diseases	2.0
Clinical Skills III	1.5
Professional Life Skills III	1.0
Introduction to Diagnostic Imaging	3.0
Integrated Diagnostics	1.0
Total Core Credits	***17.5***
Elective Courses	
Students select up to 2 available elective courses	0.5-2.0
Total Core + Elective Credits	**18.0 - 19.5**

SEMESTER 4 (FALL)	
Core (Required) Courses	**Credits**
Animal Welfare and Behavior	2.0
Toxicology	1.5
Veterinary Nutrition	2.0
Surgery I (Introduction to Surgery)	2.0
Surgery II (Soft Tissue Surgery)	1.5
Surgery III (Orthopedic Surgery)	1.5
Animal, Human, Environmental Health	1.0
Clinical Skills IV	1.5
Anesthesia & Analgesia I (Introduction)	2.0
Veterinary Dentistry	1.5
Professional Life Skills IV	1.5
Total Core Credits	***18.0***
Elective Courses	
Students select up to 2 available elective courses	0.5-2.0
Total Core + Elective Credits	**18.5 - 20.0**

SEMESTER 5 (SPRING)	
***Core (Required)* Courses**	**Credits**
Clinical Pharmacology I	1.5
Small Animal Medicine I	4.0
Theriogenology	2.0
Food Animal Production Medicine and Surgery I	3.0
Equine Medicine & Surgery I	3.0
Clinical Skills V	2.5
Professional Life Skills V	1.0

Radiographic Interpretation	1.0
Clinical Reasoning	1.0
Avian & Exotic Animal Medicine	1.0
Total Core Credits	**20.0**
Elective Courses	
Students select up to 2 available elective courses	0.5-2.0
Total Core + Elective Credits	**20.5 - 22.0**

SEMESTER 6 (SUMMER)	
Core (Required) Courses	**Credits**
Emergency & Critical Care	1.0
Clinical Pharmacology II	1.0
Small Animal Medicine II	4.0
Food Animal Production Medicine and Surgery II	3.0
Equine Medicine & Surgery II	3.0
Clinical Skills VI	3.0
Introduction to Practice Management	1.0
Professional Life Skills VI	1.0
Total Core Credits	***17.0***
Elective Courses	
Students select up to 2 available elective courses	0.5-2.0
Total Core + Elective Credits	**17.5 - 19.0**

SEMESTERS 7, 8, 9	
Clinical Schedule Framework for Each of the 3 Clinical Semesters	
Clinical Rotations	**Weeks**
Block 1 (start May)	4 weeks
Block 2	4 weeks
Block 3	4 weeks
Block 4	4 weeks
Block 5	4 weeks
Block 6	4 weeks
NAVLE Window	3 weeks
Block 7	4 weeks
Block 8	4 weeks
Block 9	4 weeks
Block 10	4 weeks
Block 11	4 weeks
Block 12	4 weeks
Launch Week (e.g., end May)	1 week
Total Weeks	**52 weeks**
Commencement August	

5. Discuss how general education requirements will be met, if applicable.

N/A

6. Identify any specialized accreditation or graduate certification requirements for this program and its students.

UMES will be seeking accreditation for this program from the Council of Education (COE) of the American Veterinary Medical Association (AVMA).

- UMES requests a Consultative Site Visit (mandatory now for new programs). The COE will send 3-5 site visitors and a staffer for 2–3-day campus visit and discussions. The visit will occur within 4-12 months of the initial request and is preceded by the preparation of a Self-Study covering the 11 Standards for accreditation.
- The COE shares a report with UMES after the Consultative Site Visit.
- UMES requests a Comprehensive Site Visit following the receipt of the Consultative report.
- Comprehensive Site Visit leads to a report approving the program.

7. If contracting with another institution or non-collegiate organization, provide a copy of the written contract.

N/A

8. Provide assurance and any appropriate evidence that the proposed program will provide students with clear, complete, and timely information on the curriculum, course and degree requirements, nature of faculty/student interaction, assumptions about technology competence and skills, technical equipment requirements, learning management system, availability of academic support services and financial aid resources, and costs and payment policies.

During orientation, students will be provided with an informational packet comprising all pertinent information with respect to the curriculum as well as all other support services provided by different offices. The entire curriculum and course specific information of the proposed degree program will be posted on the websites of the new School of Veterinary Medicine. Information about the availability of academic/student support services, financial aid resources, and tuition payment policies can be found on the UMES Office of Graduate Studies website, as well as in the Financial Aid Office of UMES.

9. Provide assurance and any appropriate evidence that advertising, recruiting, and admissions materials will clearly and accurately represent the proposed program and the services available.

The University's marketing and enrollment offices will be responsible for advertising and recruiting into this program. They will comply with applicable UMES, UMD system, and

MHEC guidelines and standards to ensure that all materials accurately represent the proposed program and related services for students.

H. Adequacy of Articulation (as outlined in COMAR 13B.02.03.19)

If applicable, discuss how the program supports articulation with programs at partner institutions. Provide all relevant articulation agreements.

At this stage UMES is preparing for submission of initial self-study documents with the veterinary accreditor COE in Q2 or Q3 of 2024. We have preliminary commitments for program support that will result in Articulation Agreements later this year and Q1 of 2024. Negotiations with partner institutions will commence through legal counsel as soon as the UMES program is approved.

The proposed DVM program does not have articulation partners currently. However, the program will support the establishment articulation agreements with other system institutions to facilitate clear pathways for students into the program. Additionally the program will establish linkages with other out of state institutions several of which have written letters expressing interest in such articulation. at the Bachelor's degree level, for example, a B.S./Ph.D.

I. Adequacy of Faculty Resources (as outlined in COMAR 13B.02.03.11).

1. **Provide a brief narrative demonstrating the quality of program faculty. Include a summary list of faculty with appointment type, terminal degree title and field, academic title/rank, status (full-time, part-time, adjunct) and the course(s) each faculty member will teach in the proposed program.**

UMES currently employs five faculty with expertise relevant to the proposed program (see bios below). However, we anticipate to recruit 10 fulltime faculty during the first year. This number will rise 25 by the end of the first five years. The program anticipates hiring 10-15 adjunct faculty.

Kimberly Braxton (DVM) joined the university in 2018 as campus veterinarian, assistant professor in the Department of Agriculture, Food and Resource Sciences IACUC Attending Veterinarian, and PreVet student advisor. A Maryland naive, Dr. Braxton earned her bachelor's degree at UMES and her doctor of veterinary medicine (DVM) degree from Purdue University School of Veterinary Medicine. Braxton completed an externship at the Indianapolis Zoo as well as studied overseas at the Czech Republic Veterinary School and Zoo Brno and Prague Zoo. She practiced small animal medicine for 10 years in Charles County MD and then relocated to the eastern shore to accept her current role as campus veterinarian and professor. Dr. Braxton currently teaches Animal and Avian Disease, Introduction to Animal science, Introduction to Veterinary Medicine, Veterinary Medical Terminology, and Agriculture and Animal Science Special Topic courses. Dr. Braxton

currently serves as a member of the American Veterinary Medical Association (AVMA), American Association for Laboratory Animal Science (AALAC) and American Association of Small Ruminant Practitioners (AASRP). Dr. Braxton also works as a relief clinical veterinarian for local animal clinics and human societies in the area in order to keep her clinical skill sharp but also to help with the shortage of veterinarians in the area. Dr Braxton earned the 2022-2023 Outstanding Student Experience Award from the Department of Agriculture. Dr. Braxton strives to provide excellent service and always goes above and beyond for UMES students, colleagues and constituents.

Janak Dhakal (Ph.D.) is an Assistant Professor of Animal Sciences in the Department of Agriculture, Food, and Resource Sciences at the University of Maryland Eastern Shore. He holds a B.V.Sc. Degree in Veterinary Science and Animal Husbandry, and doctorate in Poultry Science. With over ten years of experience and specialization in controlling and characterizing foodborne bacteria, molds, viruses, and antimicrobial resistance, he is committed to improving animal and human health. Janak also served in the industry for less than a year before joining Kansas State University and the University of Nebraska-Lincoln for his post-doctoral fellowship. He has authored 20 peer-reviewed manuscripts, three research notes, one book chapter, and over three dozen scientific abstracts. Janak also serves as an editor and editorial board member of various international journals, such as Animals, Journal of Food Protection, Food Protection, etc.

Eric B. May (Ph.D.) is a full professor and he received his B.S. in 1971 in Zoology with a Fisheries minor; his M.S. in Biology in 1972 with concentrations in Aquatic Ecology, Parasitology and Cell Biology; and his Ph.D. in 1982 with concentrations in Biochemistry, Pathology and Microbiology. He graduated as a comparative pathologist under the College of Veterinary Medicine at Oregon State University. Since beginning his independent professional career in 1982 Dr. May has served as an assistant professor in the Department of Pathology, University of Maryland School of Medicine during which time he formed and served as coordinator for the Aquatic Toxicology and Pathobiology Laboratory and the first senior pathologist for the National Aquarium in Baltimore. He served as Coordinator and then Chief of the Aquatic Animal Health Program for the Maryland Department of Natural Resources from 1987 to 1997 and as State Assistant Unit Leader (Maryland Department of Natural Resources) for the Maryland Cooperative Fish and Wildlife Research Unit at the University of Maryland Eastern Shore from 1997 to 2000. He is trained in comparative pathology working as resident for the University of Oregon Health Sciences Center in anatomical pathology and surgical pathology; College of Veterinary Medicine Diagnostic Laboratory as diagnostician and Lecturer of Histology and Large Animal Anatomy; University of Maryland at Baltimore School of Medicine as post-doctoral fellow and then Director of the Toxicology and Pathobiology Laboratory and Johns Hopkins Department of Comparative Pathology as visiting resident.

Enrique Nelson Escobar (Ph.D.) is an associate professor and has graduate degrees from the University of Maryland, College Park. He has developed an academic and professional career with small ruminants (sheep and goats) in Texas, Oklahoma and Maryland, and has served multiple times as an instructor and/or consultant in international projects dealing with small ruminant production. Dr. Escobar has been the recipient of several grants to conduct research and extension activities involving sheep and goats with interest in unwanted vegetation management, forage utilization, and food safety. Presently, Dr. Escobar is an Associate Professor at the University of Maryland Eastern Shore (UMES) and functions as the Small Ruminant Extension Specialist and the UMES Extension Associate Dean. His interests continue to be teaching ruminant nutrition, and research on fescue toxicosis and small ruminant parasites.

Jennifer Timmons, (Ph.D.) is an associate professor who joined the University of Maryland Eastern Shore in 2012 after five years serving as the poultry specialist with the University of Maryland Extension. While working at the University of Maryland Extension she supported the state's poultry industry through research and educational programs to promote sustainable practices that minimize environmental impacts and improve biosecurity awareness and education. Before joining the University of Maryland Extension she worked as a HACCP coordinator and a broiler flock supervisor. Her teaching responsibilities include animal and avian nutrition, and poultry production and management. Her research interests are dietary strategies to address environmental issues, ammonia control/litter management, and energy usage. Dr. Timmons is also a certified PAACO poultry welfare auditor. In addition, Dr. Timmons and her husband Tim own a two house broiler farm in Delaware.

Potential courses to be taught by existing faculty, subject to faculty assignment to the new School of Veterinary Medicine Program

Core (Required) Courses	**Instructor**
Veterinary Anatomy I	Dr. Janak Dhakal
Veterinary Physiology	Dr. Janak Dhakal
Veterinary Histology	Dr. Eric May
Veterinarians & Animals in Society	Dr. Jennifer Timmons
Clinical Skills I	Dr. Kimberly Braxton
Veterinary Anatomy II	Dr. Janak Dhakal
Veterinary Parasitology	Dr. Eric May
Clinical Skills II	Dr. Kimberly Braxton

Core (Required) Courses	Instructor
Veterinary Pathology	Dr. Eric May
Zoonotic & Transboundary Diseases	Dr. Janak Dhakal
Animal Welfare and Behavior	Dr. Jennifer Timmons
Veterinary Nutrition	Dr. Jennifer Timmons & Dr. Enrique Escobar
Animal, Human, Environmental Health	Dr. Jennifer Timmons

2. Demonstrate how the institution will provide ongoing pedagogy training for faculty in evidenced-based best practices, including training in:

UMES offers ongoing professional development and training opportunities for all faculty and staff in the latest pedagogies and learning technologies. These are organized both under individual schools and departments and the Provost's Office. The University operates CITOL and CTE – both of which are responsible for supporting pedagogy and sound evidence-based practices to enhance student outcomes.

a) Pedagogy that meets the needs of the students

The Center for Teaching Excellence (CTE) provides ongoing pedagogy training for faculty in evidence-based best practices to support high-impact practices pedagogy to meet the needs of UMES students. To accomplish its mission of ensuring expanding and enhancing faculty pedagogy training, CTE has developed three broad program areas to support faculty teaching success which includes evaluation of teaching techniques, professional development of faculty as it relates to pedagogy, and recognition of faculty who have demonstrated outstanding pedagogy methodology. The evaluation of teaching techniques program includes the use of student experience of learning surveys, peer observation of teaching, and open classroom week. The professional development of the faculty program includes funding to attend pedagogy conferences, faculty workshops, FACTE working group, seminar series for new faculty, and innovation in teaching & learning conferences. Lastly, CTE's faculty recognition program includes student choice for teaching excellence e-badge, CTE website – faculty spotlights, and SOTL publication opportunities.

b) The learning management system

The Center for Instructional Technology and Online Learning (CITOL) at UMES supports the development, design, and delivery of online and hybrid programs, classes, and workshops with a focus on flexibility, resiliency, equity, accessibility, privacy, and safety (FREAPS). CITOL assists faculty, staff, and students in all aspects of digital teaching and learning concerning pedagogy and technology. This includes the use of the Canvas Learning

Management System, Echo360, Google Workspace, Respondus 4.0, and Respondus LockDown Browser.

c) Evidenced-based best practices for distance education, if distance education is offered.

The Center for Instructional Technology and Online Learning (CITOL) at UMES supports the development, design, and delivery of online and hybrid programs, classes, and workshops with a focus on flexibility, resiliency, equity, accessibility, privacy, and safety (FREAPS). CITOL assists faculty, staff, and students in all aspects of digital teaching and learning concerning pedagogy and technology. This includes the use of the Canvas Learning Management System, Echo360, Google Workspace, Respondus 4.0, and Respondus LockDown Browser. Other Services offered by the Center for Instructional Technology and Online Learning include: supporting Canvas Learning Management System (LMS) and other instructional software which can be found on the CITOL website: new resources; providing ongoing professional development through virtual workshops;conducting UMES Online Teaching Certification & Course Quality Review; developing interactive and assessment materials for classes; and helping troubleshoot student problems on
LMS.

J. Adequacy of Library Resources (as outlined in COMAR 13B.02.03.12).

1. Describe the library resources available and/or the measures to be taken to ensure resources are adequate to support the proposed program.

The Frederick Douglass Library is the only library on the UMES campus. As a member of the University of System of Maryland and Affiliated Institutions (USMAI) consortium, the Frederick Douglass Library is affiliated with 17 public universities and colleges in the state of Maryland. The integrated library system ALEPH makes it possible for patrons to have 24/7 access to USMAI library collections and electronic resources. The UMES library currently possesses some resources that are relevant to this program and will be making additional acquisitions of both print and electronic resources to fully support it.

In-person visits to the library are available 91.5 hours per week including weekends. The Frederick Douglass Library has the following resources available and/or the measures to be taken to ensure resources are adequate to support the proposed programs:

- Books, periodicals, and other reference materials may be located and obtained for patron usage at any time online via the library catalog, online databases, interlibrary loan, inter-campus loan, or by visiting the library.
- ILLIAD (Interlibrary Loan) service allows students, faculty, and staff to take advantage of the millions of items from other universities that are not available at the Frederick Douglass Library. Interlibrary Loan allows the borrower to request items (books, and articles from non-university of Maryland System libraries. The average time to receive an article is 2 weeks. The average time to receive a book is 3 weeks. There is also Rapid Interlibrary Loan (Rapid ILL) where most articles may be received

within 24 hours. Borrowers are notified by email from the FDL staff to pick up items from the Inter-Library Loan service desk. Many articles requested will be received electronically and available to be accessed within ILLIAD. Inter-campus loans may be requested from another University of Maryland System Library and delivered to the FDL for patron pick up. The average time to receive a book is 3-5 days.

- Resources that are available electronically via the Frederick Douglass webpage are databases, ebooks and e-journals. For instance Journal Finder is a quick link on the library homepage that provides alphabetical journal searches for the user. There are 107 journals associated on the subject of Veterinary Science.
- Open Education Resource Textbooks is a search interface that allows faculty to retrieve OER resources to be used as course materials at no cost to students.

There are over 140 databases pertaining to research including the following that have direct relevance to veterinary sciences:

- Academic Search Ultimate – Multi-disciplinary database provides information to most academic disciplines and subjects. Includes full-text for peer-reviewed journals, magazines, newspapers and books.
- AGRICOLA – provides millions of citations relating to the field of agriculture that are comprised of journal articles, book chapters, theses, patents, software, audiovisual materials and technical reports to support agricultural research.
- Animal Welfare Information Center (AWIC) – website provides information for improved animal care and use in research, teaching and testing.
- Ebook Central (ProQuest) – a collection of thousands of full-text online books on a broad range of subjects in the humanities, natural and physical sciences and the social sciences.
- Medline (EBSCO) – provides abstracts and indexing using Medical Subject Headings (MeSH) for about 4,600 biomedical journals published in the U.S. and 70 foreign countries. Coverage includes the fields of medicine, nursing, dentistry, veterinary medicine, psychiatry, pre-clinical sciences, medical education and health care planning and administration of services.
- PubMed – the National Library of Medicine's Medline database providing abstracts and indexing for biomedical journals published in the U.S. and in foreign countries. It also covers chemistry journals. Topics include medicine, nursing, dentistry, veterinary medicine, psychiatry, pre-clinical sciences, medical education, public health and more.
- Science Direct – Full-text database contains peer-reviewed journal titles and ebooks covering the fields of science, technology and medicine.

K. Adequacy of Physical Facilities, Infrastructure and Instructional Equipment (as outlined in COMAR 13B.02.03.13)

1. Provide an assurance that physical facilities, infrastructure and instruction equipment are adequate to initiate the program, particularly as related to spaces for classrooms, staff and faculty offices, and laboratories for studies in the technologies and sciences.

At the outset, UMES plans to use a mix of appropriated existing and new physical infrastructure to support the program. Indeed, UMES recently made substantial investments in campus infrastructure for the health sciences area. A new School of Pharmacy and Health Professions building has been completed as part of Phase 1 of the project. It is envisaged that Phase 2 will include specific facilities that will support instruction and research for the proposed School of Veterinary Medicine. Instructional space will also be available in the Center for Food Safety, Science and Technology.

Plans have also been made and funding sought to develop additional support facilities including:

A Veterinary Skills Center estimated at about 6,000 sq. ft. will be established. This will contain a large, open space with textured epoxy floors and walls to be used for primarily as an anatomy teaching laboratory. The laboratory is expected to have exam tables, dissection tables, stools, gurneys, large models and the racks for suspending large animal learning models supported by casters which can be wheeled in and out as needed. Eye-wash stations and an emergency shower will be necessary components in the laboratory. Wireless high definition teaching cameras will be used to provide real-time clinical skills demonstrations to strategically positioned large, flat screen monitors. The space will be equipped with appropriate audio/visual equipment. This effort will include the renovation and repurposing of the animal exhibition hall within the Food Science and Technology Building: The animal exhibition hall is a 6,000 sq. ft. space within the Food Science and Technology Center.

Administrative and faculty/staff office spaces will be adjacent to the Veterinary Skills Center with student services and work areas, all totaling 10,000-15,000 sq. ft. The DVM program will access larger teaching, student work and seminar areas within existing UMES facilities, in particular at Phase 1 of the Pharmacy and Health Professions building.

A Bovine Teaching Center comprising a new structure to handle a small herd of about 10 cattle for teaching bovine clinical skills. The facility will contain all relevant supportive structures such as clinical spaces for food animal surgery, restrooms, showers, a teaching laboratory, an office, a garage for animal transport and ambulatory vehicles, including an adjacent restocking area and outdoor pens for livestock.

A small equine stable to handle 4-6 horses including a feed and tack room, a supply room and a restroom will also be constructed including other ancillary facilities such as an equine wash area, a round pen, and an outdoor equine riding arena.

An existing Small Ruminant Facility will be renovated to support the new program.

2. **Provide assurance and any appropriate evidence that the institution will ensure students enrolled in and faculty teaching in distance education will have adequate access to:**

    a) An institutional electronic mailing system, and

b) A learning management system that provides the necessary technological support for distance education

The Center for Instructional Technology and Online Learning (CITOL) at UMES supports the development, design, and delivery of online and hybrid programs, classes, and workshops with a focus on flexibility, resiliency, equity, accessibility, privacy, and safety (FREAPS). CITOL assists faculty, staff, and students in all aspects of digital teaching and learning with regard to pedagogy and technology. This includes the use of the Canvas Learning Management System, Echo360, Google Workspace, Respondus 4.0, and Respondus LockDown Browser.

L. Adequacy of Financial Resources with Documentation (as outlined in COMAR 13B.02.03.14)

1. Complete Table 1: Resources and Narrative Rationale. Provide finance data for the first five years of program implementation. Enter figures into each cell and provide a total for each year. Also provide a narrative rationale for each resource category. If resources have been or will be reallocated to support the proposed program, briefly discuss the sources of those funds.

Table 1. Program Resources

Resource Categories	Year 1	Year 2	Year 3	Year 4	Year 5
1. Reallocated Funds	$0	$0	$0	$0	$0
2. Tuition/Fee Revenue (c + g below)	$5,250,000	$9,975,000	$14,463,750	$14,463,750	$14,463,750
a. Number of F/T Students	100	190	275.5	275.5	275.5
b. Annual Tuition/Fee Rate	$52,500	$52,500	$52,500	$52,500	$52,500
c. Total F/T Revenue (a x b)	$5,250,000	$9,975,000	$14,463,750	$14,463,750	$14,463,750
d. Number of P/T Students	$0	$0	$0	$0	$0
e. Credit Hour Rate	$0	$0	$0	$0	$0

Resource Categories	Year 1	Year 2	Year 3	Year 4	Year 5
f. Annual Credit Hour Rate	$0	$0	$0	$0	$0
g. Total P/T Revenue (dxexf)	$0	$0	$0	$0	$0
3. Grants, Contracts & Other External Sources	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000
4. Other Sources	$1,362,600	$2,588,940	$3,753,963	$3,753,963	$3,753,963
TOTAL (Add 1 – 4)	$8,612,600	$14,563,940	$20,217,713	$20,217,713	$20,217,713

Narrative

Tuition: The budget above assumes a cohort of 100 students will be accepted each year with tuition charges for in state students set at $30,000 and out of state students at $60,000. Thus an average of $52,500 is used in the calculation. We also assume that 25% of the students will be in state and 75% out of state. We also assume an attrition rate of 10% and 5% in the second and third year respectively.

Grants Contracts and Other External Sources: It is estimated that donated funds and in kind support by corporate partners will be $2 million per year.

Other Sources: We assume an increase in the state appropriation on a per student basis calculated at $13,626.

2. **Complete Table 2: Program Expenditures and Narrative Rationale. Provide finance data for the first five years of program implementation. Enter figures into each cell and provide a total for each year. Also provide a narrative rationale for each expenditure category.**

Table 2. Program Expenditures

Expenditure Categories	Year 1	Year 2	Year 3	Year 4	Year 5
1. Faculty (b + c below)	$1,620,000	$3,321,000	$4,255,031	$4,361,407	$4,470,442
a. Number of FTE	10	20	25	25	25
b. Total Salary	$1,200,000	$2,460,000	$3,151,875	$3,230,672	$3,311,439
c. Total Benefits	$420,000	$861,000	$1,103,156	$1,130,735	$1,159,004

Expenditure Categories	Year 1	Year 2	Year 3	Year 4	Year 5
2. Admin. Staff (Dean+Associate Deans) (b + c below)	$675,000	$691,875	$709,172	$726,901	$745,074
a. Number of FTE	2	2	2	2	2
b. Total Salary	$500,000	$512,500	$525,313	$538,445	$551,906
c. Total Benefits	$175,000	$179,375	$183,859	$188,456	$193,167
3. Support Staff (b + c below)	$1,316,250	$1,798,875	$2,028,232	$2,078,937	$2,130,911
a. Number of FTE	15	20	22	22	22
b. Total Salary	$975,000	$1,332,500	$1,502,394	$1,539,954	$1,578,452
c. Total Benefits	$341,250	$466,375	$525,838	$538,984	$552,458
4. Technical Support and Equipment	$1,000,000	$1,100,000	$1,210,000	$1,331,000	$1,464,100
5. Library	$300,000	$330,000	$363,000	$399,300	$439,230
6. New or Renovated Space					
7. Other Expenses	$3,575,000	$6,150,000	$8,725,000	$9,225,000	$9,225,000
TOTAL (Add 1 – 7)	$8,486,250	$13,391,750	$17,290,435	$18,122,546	$18,474,757

Narrative

Faculty salaries are set at $120,000 with an escalation for cost of living allowance set at 2.5% (10 FTE in first year rising to 25 in the fifth year).

Administrative staff (dean and associate dean) salaries set at $250,000 with a 2.5%cost of living allowance (Total 2 FTE)

Staff salaries are set at $65,000 with an escalation for cost of living allowance set at 2.5%. (15 FTEs in first year rising to 22 in the fifth year)

Technical support and equipment expenses envisaged at $1 million in first year and escalated at 10%.

Library support costs set at $300,000 in first year with a 10% escalation.

Other expenses budgeted include scholarship support set at 30% of tuition and operational expenses (travel, recruitment, supplies etc.) which are budgeted at $2 million in first year rising to $4.5 million in fifth year.

Startup Costs. Although not included in the five year expense budget, it is anticipated that for the three years prior to start of classes, $13,869,500 will be spent including $11,500,000 to acquire new or renovated space to support the program. Other costs covered during this period will include salaries for two founding faculty, 1 administrators (founding dean) and 2 staff (total cost $1,849,500). Operational expenses including consultant charges are budgeted at $520,000.

M. Adequacy of Provisions for Evaluation of Program (as outlined in COMAR 13B.02.03.15).

1. Discuss procedures for evaluating courses, faculty and student learning outcomes.

UMES has a comprehensive course and program evaluation process. Each course syllabus has a set of written student learning outcomes. The course learning outcomes are assessed through embedded questions on tests and assignments that address specific course outcomes. Data are collected and analyzed and results are used to improve course curriculum and pedagogy.

Once the program is launched all courses will be entered into the course evaluation system. Teaching evaluations ask students to reflect on the course structure, the course content, and the instructor's performance. Summary data will be reviewed by faculty members, the program chair, and the school administration, to determine any necessary revisions or improvements are needed.

Additionally, all faculty are evaluated annually. The evaluation process includes an assessment of faculty teaching, research productivity, and service. To receive a high evaluation, a faculty member must demonstrate effective teaching, active scholarly activities, publication, etc. There is also a provision for the administration to set out an improvement plan for faculty members who have not done well in the area of teaching. Tenured faculty will undergo a five-year post-tenure review.

UMES policy requires all existing academic programs to undergo a periodic review every seven years. The review process is approved by the University System of Maryland (USM) Board of Regents and includes an internal self-study, an external review, and the submission of a periodic program review report to the USM.

- External review of existing academic programs is a standard practice in higher education. The purpose of external review is to garner additional perspectives on program strengths and weaknesses from academics and professionals in the field or a closely related field who are affiliated with other institutions.
- The review of existing academic programs shall include both self-study (internal review) and external review.

- As much as possible, the institution should link its reviews of existing academic programs to specialized accreditation processes and dates. An external review associated with reaffirmation of specialized accreditation or with initial accreditation may, if completed within one year of the review date, satisfy the external review requirement.
- When review of the academic program will not occur as part of the specialized accreditation process, each institution should develop its own process for garnering external reviews. The method for identifying and selecting specific individuals who will serve as external reviewers should be determined.
- External reviews may consist of written responses to the self-study and supporting documents and/or may include on-campus visits during which team members interview students, faculty, and administrators.
- The final product from external reviewers should be a report that explicitly identifies program strengths and suggests improvements.

The below documents provide additional evidence about the process for program reviews at UMES:

Document: Periodic Program Reviews (PPR) Information Session The Templates (June 2022)

Document: Periodic Program Reviews (PPR) Information Session Overview (May 2022)

Form: PPR 2022 Self-Study Report (Internal Review) Template

Form: USM 2022 Report on the Periodic Review of Academic Programs (PPR) Template

For online courses, UMES operates a Course Review process, whereby instructors work with instructional design professionals to review their course in light of the UMES Quality Online Instruction (QOI-UMES) rubric. QOI-UMES provides a tool not for assessing courses but for providing feedback to help instructors revise and remodel their courses. Instructors should expect the review process to take up to 4 weeks, depending on instructor and designer availability.

2. Explain how the institution will evaluate the proposed program's educational effectiveness, including assessments of student learning outcomes, student retention, student and faculty satisfaction, and cost-effectiveness.

Given that the DVM program will be accredited by AVMA-COE, a key indicator of the proposed program's educational effectiveness is provided by the pass rate of graduates in the North American Veterinary Licensing Examination (NAVLE). The accrediting body requires a minimum pass rate of 80%.

The new School of Veterinary Medicine will implement processes for review of student learning outcome achievement both at the individual course level and at the programmatic level. The dean of the school will, in conjunction with staff review retention and student success data with a view to identifying areas for improvement. The university also regularly implements student evaluations of teaching each semester to collate student feedback and make necessary changes.

UMES operates a system of shared governance with faculty and the dean of the new school will be responsible for assessing faculty satisfaction and taking any necessary steps for improvement. The dean will also be expected to work with the Provost and the CFO in ensuring that the program is cost effective.

N. Consistency with the State's Minority Student Achievement Goals (as outlined in COMAR 13B.02.03.05).

3. Discuss how the proposed program addresses minority student access & success, and the institution's cultural diversity goals and initiatives.

The mission of UMES focuses directly on matters pertaining to minority student access and success. The institution's cultural and diversity goals goals and framework are structured around four core diversity principles focusing on recruitment, retention, curriculum and training, and culture. These components will be central to all the developments within the new School of Veterinary Sciences. As an 1890 land-grant university, UMES' programs attract a diverse student base with the majority being African-American and those who are multiethnic and multicultural. The new DVM program will establish linkages with minority focused source schools in Maryland, other 1890 schools and minority serving institutions (see sample letters of interest to collaborate, Appendix II).

O. Relationship to Low Productivity Programs Identified by the Commission:

1. **If the proposed program is directly related to an identified low productivity program, discuss how the fiscal resources (including faculty, administration, library resources and general operating expenses) may be redistributed to this program**.

   N/A

P. Adequacy of Distance Education Programs (as outlined in COMAR 13B.02.03.22)

1. Provide affirmation and any appropriate evidence that the institution is eligible to provide Distance Education.

UMES participates in the State Authorization Reciprocity Agreement (SARA). Some of the benefits for students of our institutional participation in SARA include greater access to online programs, improved quality of distance education, and reduced institutional costs. SARA is a voluntary agreement among its members that establishes comparable national standards for interstate offering of postsecondary distance-education courses and programs. It is intended to make it easier for students to take online courses offered by postsecondary institutions based in another state" (NC-SARA.org). All faculty in the new School of Veterinary Sciences who involved in any online courses will be required to complete all necessary training and certifications.

4. Provide assurance and any appropriate evidence that the institution complies with the C-RAC guidelines, particularly as it relates to the proposed program.

UMES has a strong commitment to online teaching and this is demonstrated by the resources of its Center for Instructional Technology and Online Learning (CITOL) which was founded in 2006. CITOL provides a faculty computer lab, course development, instructional, and technical support to new and current faculty. CITOL supports the development, design, and delivery of online and hybrid programs, classes, and workshops with a focus on flexibility, resiliency, equity, accessibility, privacy, and safety (FREAPS). CITOL assists faculty, staff, and students in all aspects of digital teaching and learning concerning pedagogy and technology. This includes the use of the Canvas Learning Management System, Echo360, Google Workspace, Respondus 4.0, and Respondus LockDown Browser. As C-RAC 2021 requires programs to provide details about practices to engage and assist distance education students; CITOL facilitates student-centered training and workshops, provides students mentoring and help desk support, and hosts a repository of student-centered LMS and online learning resources. The new School of Veterinary Medicine and CITOL will work closely to assure that any courses under the new program adhere to C-RAC Guidelines for the Evaluation of Distance Education.

Appendix I: Doctor of Veterinary Medicine at UMES - Curriculum Overview

The University of Maryland Eastern Shore is proposing a 3-year program with 9 semesters, including the Fall, Spring, and Summer of each year. Semester 1 will start in the Fall of the first year. Graduation will take place at the end of the Summer of the third year. The first 6 semesters will be comprised of primarily didactic and laboratory courses. Both required and elective courses are offered during these 6 semesters. Semesters 7, 8, and 9 are the clinical rotations of this distributive model program based upon a collaborative partnership between community professionals and the veterinary school. This curriculum document has not been finalized by veterinary faculty or Deans and will be reviewed multiple times before the first class of veterinary students arrive in 2026.

In this document are:

- Veterinary Course Listings by Semester for Semesters 1-9
- Required Courses with Course Descriptions by Semester for Semesters 1-6
- Elective Courses with Course Descriptions for Semesters 1-6
- Clinical Year Required Courses for Semesters 7, 8, 9
- Clinical Rotations for Semesters 7, 8, 9 as Foundational, Elective, Required

Year 1 & 2 Summary:

SEMESTER 1 (FALL)	
Core (Required) Courses	**Credits**
Building Adaptability and Academic Resilience	0.5
Veterinary Anatomy I	5.0
Veterinary Physiology	5.0
Veterinary Histology	1.0
Veterinarians & Animals in Society	0.5
Clinical Skills I	1.0
Applied Anatomy & Physiology	1.0
Professional Life Skills/Professional Identity	1.0
Medical Science	1.0
Total Core Credits	**16.0**

SEMESTER 2 (SPRING)	
Core (Required) Courses	**Credits**
Veterinary Anatomy II	4.0
Veterinary Parasitology	3.0
Evidence-Based Veterinary Medicine	1.5
Veterinary Immunology	2.5
Veterinary Virology	1.5
Bacteriology & Mycology	2.5
Epidemiology & Biostatistics	1.0

Clinical Skills II	1.0
Professional Life Skills II / Professional Identity	1.0
Basic Pharmacology	1.0
Total Core Credits	**19.0**

SEMESTER 3 (SUMMER)	
Core (Required) Courses	**Credits**
Veterinary Pathology	6.0
Clinical Pathology	3.0
Zoonotic & Transboundary Diseases	2.0
Clinical Skills III	1.5
Professional Life Skills III	1.0
Introduction to Diagnostic Imaging	3.0
Integrated Diagnostics	1.0
Total Core Credits	***17.5***
Elective Courses	
Students select up to 2 available elective courses	0.5-2.0
Total Core + Elective Credits	**18.0 - 19.5**

SEMESTER 4 (FALL)	
Core (Required) Courses	**Credits**
Animal Welfare and Behavior	2.0
Toxicology	1.5
Veterinary Nutrition	2.0
Surgery I (Introduction to Surgery)	2.0
Surgery II (Soft Tissue Surgery)	1.5
Surgery III (Orthopedic Surgery)	1.5
Animal, Human, Environmental Health	1.0
Clinical Skills IV	1.5
Anesthesia & Analgesia I (Introduction)	2.0
Veterinary Dentistry	1.5
Professional Life Skills IV	1.5
Total Core Credits	***18.0***
Elective Courses	
Students select up to 2 available elective courses	0.5-2.0
Total Core + Elective Credits	**18.5 - 20.0**

SEMESTER 5 (SPRING)	
***Core (Required)* Courses**	**Credits**
Clinical Pharmacology I	1.5
Small Animal Medicine I	4.0
Theriogenology	2.0
Food Animal Production Medicine and Surgery I	3.0
Equine Medicine & Surgery I	3.0
Clinical Skills V	2.5
Professional Life Skills V	1.0

Radiographic Interpretation	1.0
Clinical Reasoning	1.0
Avian & Exotic Animal Medicine	1.0
Total Core Credits	**20.0**
Elective Courses	
Students select up to 2 available elective courses	0.5-2.0
Total Core + Elective Credits	**20.5 - 22.0**

SEMESTER 6 (SUMMER)	
Core (Required) Courses	**Credits**
Emergency & Critical Care	1.0
Clinical Pharmacology II	1.0
Small Animal Medicine II	4.0
Food Animal Production Medicine and Surgery II	3.0
Equine Medicine & Surgery II	3.0
Clinical Skills VI	3.0
Introduction to Practice Management	1.0
Professional Life Skills VI	1.0
Total Core Credits	***17.0***
Elective Courses	
Students select up to 2 available elective courses	0.5-2.0
Total Core + Elective Credits	**17.5 - 19.0**

SEMESTERS 7, 8, 9	
Clinical Schedule Framework for Each of the 3 Clinical Semesters	
Clinical Rotations	**Weeks**
Block 1 (start May)	4 weeks
Block 2	4 weeks
Block 3	4 weeks
Block 4	4 weeks
Block 5	4 weeks
Block 6	4 weeks
NAVLE Window	3 weeks
Block 7	4 weeks
Block 8	4 weeks
Block 9	4 weeks
Block 10	4 weeks
Block 11	4 weeks
Block 12	4 weeks
Launch Week (e.g., end May)	1 week
Total Weeks	**52 weeks**
Commencement August	

Veterinary Medicine Curriculum			
Semester 1 (Year 1) Fall Semester Core Courses			
Course Title	**Credits Lec hours Lab hours**	**Mode of Instruction**	**Course Description**
Building Adaptability and Academic Resilience	0.5 Credits Lec: 7 Lab: 0	Lecture, Technologies	This course will facilitate the transition to the first year of the veterinary curriculum and veterinary medical school. Students will apply research from learning science, components of positive psychology, and well-being to their individual contexts to best support academic transitions. They will be introduced to the importance of adaptability for success and concepts of the adaptability quotient. Topics include organizational strategies with cognitive load, facilitating a reasonable study plan that demonstrates forethought, monitoring learning through sustaining practice with different types of knowledge, among other topics.
Veterinary Anatomy I	5 Credits Lec: 39 Lab: 68	Lecture, Lab, Technologies	This course provides a systemic and topographic study of macroscopic body structure through both didactic lectures and laboratory experiences. Students will gain insights into the normal structure, function, and relationships of clinically important structures using the dog and the cat as primary models for the study of general mammalian form. A team approach is used for laboratory work using models and prepared specimens for demonstration, dissection, and state-of-the-art immersive technologies, like virtual reality. Function will be correlated with clinically relevant malfunction of anatomical structures, as clinical applications are

			incorporated throughout the course in alignment towards the ultimate goal of contributing to the education of a veterinary practitioner.
Veterinary Physiology	5 credits Lec: 83 Lab: 0	Lecture, Lab, Technologies	The course offers comprehensive understanding of normal mammalian physiologic function with emphasis on clinical application. Through clinical case examples and using digital learning and immersive technologies, the connection between physiologic knowledge and the practice of veterinary medicine is illustrated and basic mathematical and client education skills are practiced. Course content includes basic cell and cell membrane function, body fluid compartments, water and the major electrolytes, transport processes. excitable tissues, temperature regulation, as well as physiology of the important body systems: (1) neuromuscular; (2) cardiovascular; (3) respiratory; (4) endocrine; (5) nervous system; and (6) integumentary
Veterinary Histology	1 Credit Lec: 0 Lab: 30	Lab, Technologies	This course is a series of laboratories designed to develop the necessary skills to identify and describe the microscopic anatomy of basic cell types, tissues, organs, and organ systems. Course content correlates gross anatomy, microscopic anatomy, and the physiological state of common domestic species. Principles learned in this course will be applied in simultaneous and subsequent courses in the LCSVM curriculum, including courses involving case management.
Veterinarians And Animals In Society	0.5 Credits Lec: 8 Lab: 0	Lecture	This course include the history of veterinary medicine as an introduction to their professional cultural inheritance, human animal bond, animal welfare, the role of animals in human psychosocial health, professional ethics and jurisprudence. It also includes a focus on work life balance, professional organizations, and future opportunities for veterinarians.

Clinical Skills I	1 Credit Lec: 0 Lab: 30	Lab, Technologies	Students will gain experience with safe animal handling and restraint techniques and will be introduced to the general physical examination of various domestic animal species, including small animals (dogs & cats), horses, and production animals (cattle and small ruminants). Students will also be introduced to psychomotor skills needed for surgery and other clinical procedures.
Applied Anatomy And Physiology	1 Credit Lec: 14 Lab: 0	Lecture, Technologies	This course is designed to help students develop their skills in critical thinking, communication, resource identification and evaluation, and clinical decision-making through small group management of hypothetical veterinary cases. Through case-based learning, students will revisit and apply knowledge from previous course work as well as preview the application and interpretation of content from upcoming semesters. Students will maintain all appropriate medical records during the management of the mock cases, as they would for real cases.
Professional Life Skills/ Professional Identity	1 Credit Lec: 11 Lab: 4	Lecture, Lab	This course will facilitate the holistic approach and evolution of student professional identity within the veterinary medical profession. Students will apply research from veterinary medical practice, theory of identity development, components of positive psychology, and well-being to their individual contexts to best support professional identity growth and development. Topics include individual and professional mindsets, the role of values and beliefs in facilitating professional identity development, and challenges veterinary students and professionals experience with professional identity development, among other topics. The course requires reflection that demonstrates forethought and critical analysis through sustaining practice with different types of knowledge and discussion.

Medical Science	1 Credit Lec: 15 Lab: 0	Lecture	This course will provide a review of foundational and general medical knowledge required of a veterinarian. Subjects include medical terminology, medical chemistry, medical math, and medical physics.		
ELECTIVES	**0**		Students will not be taking electives in Semester 1.		
SEMESTER 1 TOTAL		Credits: 16	Total Hours: 309	Lecture Hours: 177	Lab Hours: 132
Semester 2 (Year 1) Spring Semester Core Courses					
Course Title	**Credits Lec hours Lab hours**	**Mode of Instruction**	**Course Description**		
Veterinary Anatomy II	4 Credits Lec: 49 Lab: 32	Lecture, Lab, Technologies	The course will be divided among large animal and exotic animal species. The horse will serve as the primary model for studying large animal anatomy and for comparing equine anatomy with that of other species, including other large domestic animals and species previously covered in small animal anatomy. Emphasis will be on the anatomy of large animals (horse, large ruminants, small ruminants, porcine), which is vital to preparing LCSVM students to practice veterinary medicine and enter the veterinary medical profession. Topographical, regional, systemic, and functional anatomy will be integrated. Dissection, prosections, models, imaging, digital and immersive technologies, and clinical approaches with clinical cases will be emphasized throughout the study of anatomical structures towards ability to integrate gross anatomy with basic clinical		

			anatomy. Function will be correlated with clinically relevant malfunction of anatomical structures, as clinical applications are incorporated throughout the course in alignment with the ultimate goal of contributing to the education of a veterinary practitioner.
Veterinary Parasitology	3 Credits Lec: 42 Lab: 6	Lecture, Lab	This course teaches principles of parasitology, including etiology, pathogenesis, diagnosis, treatment, and control of selected, clinically relevant parasitic diseases in animals. Students will gain knowledge of life cycle biology, transmission strategies, and natural hosts of major parasites of animals as they relate to the practice of veterinary medicine. Any zoonotic potential of parasites will also be presented.
Evidence-Based Veterinary Medicine	1.5 Credits Lec: 22 Lab: 0	Lecture, Lab, Technologies	This course discusses applying evidence-based veterinary medicine in understanding clinical research in infectious disease management. The course will further the student's comprehension of the application of evidence-based veterinary medicine, as it is used throughout the working life of veterinarians in contemporary veterinary practices. Basic training in research methodology will be covered to learn both clinical study processes and basic research processes, including how new scientific evidence is discovered, assessed, shared, and applied. These skills will be utilized to investigate an infectious disease spread within and between populations using mock case studies, in which students will appraise scientific evidence about the etiology, diagnosis, treatment, and prognosis of viral, bacterial, fungal, and parasitic diseases.
Veterinary Immunology	2.5 Credits Lec: 37 Lab: 0	Lecture	This course presents current concepts in basic and clinical immunology with special emphasis on protective immunity against infectious diseases and the role of aberrant immune responses in disease. The principles of immune-based laboratory diagnostic techniques and their interpretation will be discussed, as well as the application of immunologic principles to disease prevention, biosecurity, and therapeutic intervention. Students are expected to gain knowledge, skills, values,

			attitudes, aptitudes, and behaviors necessary to responsibly address the health and well-being of animals in the context of ever-changing societal expectations.
Veterinary Virology	1.5 Credits Lec: 22 Lab: 0	Lecture	This course introduces fundamental principles of virology as applied to important viral diseases of animals. Students will use this fundamental knowledge to develop a conceptual framework of best practices that can be adapted to incorporate novel approaches to the control of viral diseases encountered during their veterinary medical careers.
Bacteriology And Mycology	2.5 Credits Lec: 38 Lab: 0	Lecture	This course will introduces the principles of bacteriology and mycology as applied to important bacterial and fungal diseases of animals. Students will use this fundamental knowledge to develop a conceptual framework that can be adapted to incorporate novel approaches to the control of bacterial and fungal diseases that they will encounter during their veterinary careers.
Epidemiology And Biostatistics	1 Credit Lec: 15 Lab: 0	Lecture	This course introduces the basic concepts of epidemiology and biostatistics with emphasis placed on the principles and methods of epidemiologic investigation, epidemiologic definitions, appropriate summaries and displays of data, and the use of classical statistical approaches to describe the health of populations. Topics include the dynamic behavior of disease, usage of rates, ratios, and proportions, odds ratios, and other statistical tools. Various epidemiologic study designs for investigating associations between risk factors and disease outcomes are also introduced, culminating with criteria for causal inferences. The application of these disciplines in the areas of health services, screening, and environment policy are presented. The influence of epidemiology and biostatistics on legal and ethical issues are also discussed. Critical review of scientific literature will be examined.
Clinical Skills II	1 Credit	Lab, Technology	Students will be taught and will physically practice basic ligatures and suturing techniques, phlebotomy, intramuscular injection, and subcutaneous injection

	Lec: 0 Lab: 30		techniques using both models and live animals. Students will perform physical examinations of canine, equine, bovine, and equine species and be introduced to the Subjective and Objective (SOAP) format used for medical record keeping.		
Professional Life Skills Ii / Professional Identity	1 Credit Lec: 15 Lab: 0	Lecture	This course is the second tier within the Professional Identity Development pathway that continues to facilitate the holistic approach and evolution of student professional identity within the veterinary medical profession. Students will continue to apply research from veterinary medical practice, theory of identity development, components of positive psychology, and well-being to their individual contexts to support professional identity growth and development. Topics include multi-dimensional approach to role of values and beliefs in facilitating professional identity development, self-regulatory practices, conflict management and emotions, inclusive identity practices, and professional identity within the greater culture of challenges veterinary students and professionals experience, among other topics. The course requires reflection that demonstrates forethought and critical analysis through sustaining practice with different types of knowledge and discussion.		
Basic Pharmacology	1 Credit Lec: 15 Lab: 0	Lecture	This course will provide the basic information about how drugs/medications work, how they generally affect different body organs and systems, and how the body responds.		
ELECTIVES	0		Students will not be taking electives in Semester 2.		
SEMESTER 2 TOTAL		Credits: 19	Total Hours: 323	Lecture Hours: 255	Lab Hours: 255
Semester 3 (Year 1) Summer Semester Core Courses					
Course Title	**Credits**	**Mode of**	**Course Description**		

	Lec hours Lab hours	Instruction	
Veterinary Pathology	6 Credits Lec: 90 Lab: 0	Lecture, Technology	The first part of this course introduces the student to general pathology of all organ systems. The second part of this course covers systemic pathology of domestic animals. Students will apply knowledge from previous courses (anatomy, histology, physiology, parasitology, immunology, and infectious disease) with the new knowledge of general pathology to describe the pathogenesis and diagnosis of diseases. The pathophysiology of diseases will be covered for body systems of domestic animals: hepatic, pancreatic, urinary cardiovascular, endocrine, musculoskeletal, respiratory, CNS, special senses, reproductive, gastrointestinal, integumentary, and ophthalmic systems.
Clinical Pathology	3 Credits Lec: 45 Lab: 0	Lecture, Technology	This course explains pathophysiologic mechanisms responsible for abnormal findings in hematologic, biochemical, cytologic tests, and urinalysis in health and disease of animals. Students will learn a selection of appropriate diagnostic tests for various diseases and how to interpret the results of these tests. They will additionally learn basic principles of laboratory medicine, including quality control, reference intervals, specificity, sensitivity, and positive and negative predictive values.
Zoonotic and Transboundary Diseases	2 Credits Lec: 30 Lab: 0	Lecture, Technology	The course will examine aspects of diseases and the interrelatedness between individual and population human health, animal health, and the environment. The concepts of distribution, diagnosis, treatment, and control of zoonotic diseases and transboundary diseases will be explored. Students will draw from knowledge gained in other courses regarding infectious agents, the immune system, pathophysiology, clinical pathology, and parasitology and apply that knowledge to

			zoonotic and transboundary diseases. Included will be student team literature search, critical literature analysis, and student presentations. During this course, students will complete phase one of The United States Department of Agriculture (USDA) Initial Accreditation Training.
Clinical Skills III	1.5 Credits Lec: 0 Lab: 45	Lab, Technology	Students will continue development of expertise in handling and interpretation of general physical examination findings in large animals (horses, cattle, small ruminants) and small animals. They will safely handle large animals and small animals as needed for physical examination. They will progress towards mastery of psychomotor skills for surgery, such as catheter placement, closure of abdominal incisions, gloving techniques, and clamping/ligating. Students will be introduced to basic diagnostic techniques.
Professional Life Skills III	1 Credit Lec: 2 Lab: 26	Lecture, Lab	Students will be introduced to professional communication skills and their importance in veterinary medicine. The Professional Life Skills III course will focus on aspects of: Building Professional Identity, Communications, Leadership, Wellbeing, & Financial Literacy.
Introduction To Diagnostic Imaging	3 Credits Lec: 45 Lab: 0	Lecture, Technology	This introductory diagnostic imaging course covers methods of imaging, radiation safety measures, and principles of image interpretation. Radiography and ultrasonography are emphasized. Also included are computed tomography, magnetic resonance imaging, and nuclear scintigraphy. Lectures on basic image interpretation include normal findings and classical signs of common conditions as visualized through imaging methodologies. Advantages and disadvantages of artificial intelligence in diagnostic imaging will be discussed.
Integrated Diagnostics	1 Credit Lec: 0	Lab, Technology	The emphasis of this course is directed toward the integration of basic science with clinical skills, especially the use of diagnostic imaging and clinical pathology when working through a clinical case. Students will develop their skills in critical thinking,

	Lab/Case Study: 20		communication, resource identification, evaluation, and clinical decision-making through small group management of hypothetical veterinary cases. Through case-based learning, students will revisit and apply knowledge from previous courses as well as preview the application and interpretation of content from upcoming semesters.		
ELECTIVES	**0.5 - 2.0**		A 2nd elective can be taken by students in high standing, but requires approval by faculty instructor and Associate Dean for Professional Programs		
SEMESTER 3 TOTAL		Credits: 18-19.5	Total Core Hours: 303	Lecture Hours: 212	Lab Hours: 91
Semester 4 (Year 2) Fall Semester Core Courses					
Course Title	**Credits Lec hours Lab hours**	**Mode of Instruction**	**Course Description**		
Animal Welfare And Behavior	2 Credits Lec: 30 Lab: 0	Lecture, Technology	This course is an introduction to animal welfare, behavior, and related husbandry practices in major species. This course will reveal normal animal behavior and social organization from a biological perspective and also identify abnormal behavior. The course allows students to describe normal husbandry of multiple species. This course will prepare students to assess animal welfare, behavior, and husbandry and craft and communicate recommendations with animal owners, as required in the practice of veterinary medicine.		
Toxicology	1.5 Credits	Lecture	This course is an introduction to principles of toxicology in domestic animals. The student will learn basic principles of veterinary toxicology and learn how to locate		

	Lec: 22 Lab: 0		toxicological information. The course will present some common toxicants from chemicals and plants, focusing on those found in North America, that affect domestic animals. Students will learn basic approaches for the treatment of poisoned animals.
Veterinary Nutrition	2 Credits Lec: 28 Lab: 4	Lecture, Lab	This course is an overview of domestic animal nutrition, including digestion and metabolism of nutrients, feedstuffs and feeding, ration formulation, and the interaction of nutrition and disease for small animals, horses, and food animals. Clinical implications will be emphasized.
Surgery I - Introduction To Surgery	2 Credits Lec: 30 Lab: 0	Lecture, Technology	This course covers principles of surgery, including aseptic technique, perioperative patient care, and basic principles of surgical procedures and techniques, including fundamentals of anesthesia. Application of anatomic knowledge to surgical approaches will be included.
Surgery II - Soft Tissue Surgery	1.5 Credits Lec: 24 Lab: 0	Lecture, Technology	This course will cover clinical conditions seen in small animals with an emphasis on surgical treatment and prognosis. It will integrate and build upon the principles of surgery and surgical diseases, and anatomical knowledge acquired. It will go beyond the genetic and developmental aspects of small animal conditions to address surgical interventions to consider when conservative and medical therapies alone are not appropriate or are not producing satisfactory results. Case-based examples and exercises will be utilized throughout the course to improve students' ability to apply the information to practical clinical situations. Immersive technologies will be incorporated.
Surgery III – Orthopedic Surgery	1.5 Credits	Lecture, Technology	This course will cover orthopedic and other clinical conditions seen in small animals with an emphasis on surgical treatment and prognosis and the basics of fracture healing. It will go beyond the genetic and developmental aspects of small

	Lec: 22 Lab: 0		animal orthopedic and other clinical conditions to address surgical interventions to consider when conservative and medical therapies alone are not appropriate or not producing satisfactory results. Case-based learning and immersive technologies will be utilized throughout the course to improve students' ability to apply the information to real-world practical clinical situations.
Animal, Human, Environmental Health	1 Credit Lec: 15 Lab: 0	Lecture, Technology	This course includes a broad analysis of environmental impacts of livestock production, climate change, food safety and security, and emerging and transboundary diseases. These will be examined across a broad spectrum of ecosystems, including air, land, fresh water, and oceans. The inextricable links between animal, human, and environmental health will be highlighted. During this course, students will complete the USDA Transboundary and Exotic Diseases of Animals for Initial Accreditation Training.
Clinical Skills IV	1.5 Credits Lec: 0 Lab: 45	Lab, Technology	Students will continue to develop expertise in safe animal handling and restraint methods and the interpretation of general physical examination findings in large animals (equine, bovine, small ruminants). Students will progress towards mastery of psychomotor skills for surgery, such as aseptic technique, and anesthetic monitoring, also incorporating immersive technologies and surgical models.
Anesthesia And Analgesia I – Introduction	2 Credits Lec: 30 Lab: 0	Lecture, Technology	This course serves as an introduction to veterinary anesthesia, analgesia, and peri-operative case management. It will lay the foundation for the basic principles of anesthesia and analgesia, relying on the student to review and become familiar with basic pharmacology and physiology presented in previous semesters. This course is also a prerequisite for the anesthesia lectures within the Small Animal Internal Medicine course of the curriculum, in which students will apply the knowledge learned in the introductory course to formulate specific anesthetic plans for various species and cases with pre-existing conditions or comorbidities. Digital learning and immersive technologies will be a fundamental component of instruction.

Veterinary Dentistry	1.5 Credits Lec: 22 Lab: 0	Lecture, Technology	This course covers the diagnosis, treatment, prognosis, and prevention of dental diseases of various species. The importance of dental health to overall health will be included. Cases will be presented as examples to emphasize clinical application in practice.		
Professional Life Skills IV	1.5 Credits Lec: 2 Lab: 26	Lecture, Lab	Students will continue their immersion into professional communication skills and their importance in veterinary medicine. The Professional Life Skills IV course will continue its focus on aspects of: Building Professional Identity, Communications, Leadership, Wellbeing, & Financial Literacy.		
ELECTIVES	**0.5 - 2.0**		A 2nd elective can be taken by students in high standing, but requires approval by faculty instructor and Associate Dean for Professional Programs		
SEMESTER 4 TOTAL		Credits: 18.5-20	Total Core Hours: 300	Lecture Hours: 225	Lab Hours: 75
Semester 5 (Year 2) Spring Semester Core Courses					
Course Title	**Credits Lec hours Lab hours**	**Mode of Instruction**	**Course Description**		
Clinical Pharmacology I	1.5 Credits Lec: 22 Lab: 0	Lecture, Technology	The course covers drug disposition, pharmacodynamics, drug regulations, and critical appraisal of evidence about use of drugs. Drugs will be explored that affect various body systems, including respiratory, reproductive, gastrointestinal, endocrine, immune, urinary, integumentary, cardiovascular, musculoskeletal, and nervous systems. Drugs used for pain, inflammation, infections (e.g., antibiotics and other anti-infectives) and cancer (e.g., antineoplastics) in animals will also be		

			studied. The course will provide drug information for accurate diagnosis and treatment utilizing Plumb'sTM point of care resources.
Small Animal Medicine I	4 Credits Lec: 60 Lab: 0	Lecture	This course covers diagnosis, treatment, prognosis, and prevention of non-surgical diseases of the dog and cat. Students will experience a series of interactive anesthesia lectures over the course of the academic year that will integrate knowledge gained from the small animal medicine block with that of the introductory anesthesia and analgesia courses.
Theriogenology	2 Credits Lec: 30 Lab: 0	Lecture	This course integrates reproductive physiology, endocrinology, pathology, and pharmacology in the diagnosis, treatment, and prevention of reproductive disorders of domestic animals. Normal estrous cycles, breeding management, pregnancy, dystocia management, and parturition in domestic animal species will be covered. Breeding soundness in male and female animals, normal pregnancy, and production principles are included.
Food Animal Production, Medicine, & Surgery I	3 Credits Lec: 45 Lab: 0	Lecture, Technology	This course is designed to educate the veterinary student on the diagnosis, treatment, prognosis, and prevention of non-surgical and surgical diseases of food and fiber animals (bovine, ovine, caprine, porcine, camelid) and includes production animal medicine, emerging diseases, and common husbandry practices.
Equine Medicine And Surgery I	3 Credits Lec: 45 Lab: 0	Lecture, Technology	This course provides to students knowledge of equine clinical conditions, both medical and surgical, with emphasis on clinical signs, diagnosis, medical and surgical treatment, and prognosis.
Clinical Skills V	2.5 Credits Lec: 0 Lab: 75	Lab, Technology	Students will continue development of expertise in safe animal handling and restraint and interpretation of physical examination findings in small animals (dog and cat) and large animals (horses, cattle, small ruminants). Training in anesthesia

			and surgical skills will continue with introduction of anesthesia and surgery in the live animal (canine or feline).
Professional Life Skills V	1 Credit Lec: 3 Lab: 24	Lecture, Lab	Students will continue to explore professional communication skills and their importance in veterinary medicine. The Professional Life Skills V course will continue a focus on aspects of: Building Professional Identity, Communications, Leadership, Wellbeing, & Financial Literacy.
Radiographic Interpretation	1 Credit Lec: 15 Lab: 0	Lecture, Technology	This course covers principles and applications of radiographic image interpretation using the foundation of Roentgen signs. Each case presented will give students the opportunity to practice the skills of basic image interpretation, including identifying normal findings as well as classical imaging findings associated with commonly encountered radiographic diagnoses, and application of AI diagnosis. A working knowledge of veterinary anatomy and physiology is a prerequisite for this course.
Clinical Reasoning	1 Credit Lec: 8 Lab: 15	Lecture, Lab	Clinical Reasoning will introduce students to the critical review of the literature and application of clinical reasoning and critical thinking in case examples. It will also serve as preparation for the North American Veterinary Licensing Examination (NAVLE).
Avian & Exotic Animal Medicine	1 Credits Lec: 15 Lab: 0	Lecture	The purpose of this course is to build confidence, competence, and understanding in the approach to the species of small, exotic, mammalian, avian, and reptilian species that are most commonly presented to clinicians in North American practices. The representative species discussed will enable the veterinary student to gain a basic understanding of the unique challenges and requirements of these animals. The veterinary student will be expected to be able to apply their skill sets and knowledge base to the unique characteristics of these species.
ELECTIVES	**0.5 - 2.0**		A 2nd elective can be taken by students in high standing, but requires approval by faculty instructor and Associate Dean for Professional Programs

SEMESTER 5 TOTAL		Credits: 20.5-22	Total Core Hours: 357	Lecture Hours: 243	Lab Hours: 114
Semester 6 (Year 2) Summer Semester Core Courses					
Course Title	**Credits Lec hours Lab hours**	**Mode of Instruction**	**Course Description**		
Emergency & Critical Care	1 Credit Lec: 0 Lab: 30	Lab, Case-Based	This course introduces critical care topics and techniques. Students will apply this information during case-based exercises and discussions. Students will prepare in advance for case-based activities by reading assigned material and/or watching pre-recorded presentations. Students will also complete group-based activities and individual assessments. Digital and immersive technologies will be utilized.		
Clinical Pharmacology II	1 Credit Lec: 15 Lab: 0	Lecture, Technology	This course will build upon content of Clinical Pharmacology I. It will also include peculiarities among different animal species and their responses will be highlighted with relevant clinical applications. The course is designed to complement and expand on the treatment options that students learn as part of their small animal medicine, equine medicine and surgery, and food animal medicine and surgery courses. The basic principles of pharmacokinetics (absorption, distribution, metabolism, and excretion) and pharmacodynamics (biochemical and physiological drug effect, mechanism of action) will be reviewed as they relate to the practice of veterinary medicine. Therapeutic uses, contraindications, monitoring, and adverse effects of drugs will be discussed. The Plumb'sTM resources will be applied.		

Small Animal Medicine II	4 Credits Lec: 60 Lab: 0	Lecture	This course continues the diagnosis, treatment, prognosis, and prevention of non-surgical diseases of the dog and cat with emphasis on diagnosis and treatment.
Food Animal Production, Medicine, & Surgery II	3 Credits Lec: 45 Lab: 0	Lecture	This course builds on Food Animal Production, Medicine, & Surgery I. It is designed to educate the student on the diagnosis, treatment, prognosis, and prevention of non-surgical and surgical diseases of food and fiber animals (bovine, ovine, caprine, porcine, camelid) and includes production animal medicine, emerging diseases, and common husbandry practices.
Equine Medicine And Surgery II	3 Credits Lec: 45 Lab: 0	Lecture	This course continues exploration of clinical conditions, both medical and surgical, seen in the horse, with emphasis on clinical signs, diagnosis, medical, and surgical treatment, and prognosis.
Clinical Skills VI	3 Credits Lec: 0 Lab: 90	Lab, Technology	Students will be introduced to more advanced diagnostic and therapeutic procedures for small animals and large animals, including ophthalmology procedures, ultrasonography, radiography, bandaging, semen evaluation, and epidurals. A combination of live animals, models, and immersive technologies will be used. Students will demonstrate continued practice with completing medical records, including SOAPs, case presentations, and discharge instructions.
Introduction To Practice Management	1 Credit Lec: 15 Lab: 0	Lecture	This course exposes students to key concepts in veterinary practice management and ownership. Students will gain insights into the operational workings in a variety of clinical settings, including business operations, team management, and client acquisition and retention.
Professional Life Skills VI	1 Credit Lec: 12	Lecture, Lab	Students will continue to explore professional communication skills and their importance in veterinary medicine. The Professional Life Skills V course will

Include In Facilities – Multipurpose – DO & Dvm)	Lab: 5		continue to focus on aspects of: Building Professional Identity, Communications, Leadership, Wellbeing, & Financial Literacy.		
ELECTIVES	**0.5 - 2.0**		A 2nd elective can be taken by students in high standing, but requires approval by faculty instructor and Associate Dean for Professional Programs		
SEMESTER 5 TOTAL		Credits: 17.5-19	Total Core Hours: 317	Lecture Hours: 192	Lab Hours: 125

Semesters 3-6 Elective Courses

- Variable Contact Hours
- Students may take one elective per semester
- Students in high academic standing can take two electives per semester with approval by instructor and Associate Dean of Professional Programs

Course Title	Credits Lec hours Lab hours	Mode of Instruction	Course Description
Veterinary Oncology Elective	1 Credit Lec: 15 Lab: 0	Lecture, Lab	This course teaches principles and practice of veterinary oncology. Students will gain knowledge of the most common malignancies seen in both small and large animals, including diagnosis and appropriate treatment options with associated prognoses. Information will be presented in both didactic and case-based format.
Wildlife & Zoological	1 Credit Lec: 15 Lab: 0	Lecture	The purpose of this course is to introduce and expose veterinary students to the diversity of this discipline of veterinary medicine. The representative species discussed and studied in this course will enable the veterinary student to gain a

Medicine Elective			basic understanding of the unique challenges and requirements of medicine and surgery involving diverse species in ex situ locations within zoological parks and in situ within natural habitats or other environments. Likewise, the veterinary student will broaden one's knowledge and skill base, but also see the potential and benefits of providing professional veterinary care for these species. This course will build upon the knowledge & skills the sixth semester veterinary student has developed over the previous five semesters. This course will require a sound knowledge of parasitology, anatomy, physiology, general pathology, immunology, infectious diseases, and other disciplines of medicine and surgery. The veterinary student will be expected to adapt and modify their skill sets and knowledge base to apply them to the unique characteristics of these species of other taxa of the vertebrate phylum.
Nutritional Management Of Small Animal Diseases Elective	1 Credit Lec: 15 Lab: 0	Lecture	This course is an introduction to clinical nutrition that will cover recognition and management of common diseases of dogs and cats in which proper diet and nutrition play important roles.
Advanced Equine Diagnostic Procedures Elective	1 Credit Lec: 0 Lab: 30	Lab	This course expands on principles introduced in Equine Medicine and Surgery, Clinical Skills, and other courses taught in the LCSVM curriculum that are applicable to equine practice. Students will learn to use advanced diagnostic procedures and techniques commonly applied in equine medicine, surgery, and theriogenology. This course is particularly recommended for equine-oriented students before the beginning of their clinical year rotation. The course is designed to allow students to become competent and confident using basic diagnostic procedures and techniques encountered in equine practice. The individual student will be required to prepare

			in advance for the laboratories by reading assigned material and completing laboratory assignments.
Advanced Equine Lameness Elective	1 Credit Lec: 12 Case: 5	Lecture, Lab, Technology	This elective course can be taken after completion of the first two semesters by veterinary students that have an interest in doing equine sports medicine practice after graduation. The course will cover topics about the pathophysiology of joint disease, advanced performance evaluation, treatment options in athletic horses, abnormalities of the axial skeleton, imaging of the equine athlete, regenerative therapies, and rules and regulations for equine competitions, like showing and racing, including those pertaining to medications.
Large Animal Ambulatory Elective	0.5 Credits Lec: 0 Lab: 15	Lab	Students will accompany a clinician on farm calls and participate in all aspects of large animal ambulatory medicine. This course is open to 2nd and 3rd year LCSVM students interested in pursuing large animal medicine. Food animal species will be the focus of the course, but some cases may include other large animals.
Mixed Animal Practice Elective	1 Credits Lec: 15 Lab: 0		This course is primarily directed toward students that wish to focus on rural practice or want to gain broader skills across species. The course is designed to increase expertise in basic skills and techniques across species and offers opportunities to increase problem solving and critical thinking skills. Small animal, equine, diary, beef, and small ruminant topics will be conducted.
Food Animal Elective	1 Credit Lec: 0 Lab: 30	Lab	This course is designed to increase expertise in food animal skills and techniques and increase their food animal problem solving and critical thinking skills. This course is primarily directed toward students that intend to concentrate and/or specialize in food animal practice. Diary, beef, and small ruminant topics and exercises will be conducted. At least one outbreak investigation will be included.

Herd And Population Medicine Elective	1 Credits Lec: 15 Lab: 0	Lecture	This course targets students interested in careers in production animal medicine/management. It provides a deeper dive into the concepts of herd and population management. Applied principles of herd health will be examined in the context of major production systems (e.g., dairy, beef, pork, poultry), as well as other domestic species (e.g., horses, small animals), and non-traditional species (e.g., reindeer). Building upon content exposure from the core curriculum, the principles of population medicine, particularly as they relate to livestock production systems in North America, will be the focus of this elective course. This course provides students additional opportunities to understand the diversity of careers and the skills and knowledge required for jobs related to population management, herd health, and animal welfare within production systems.
Poultry Elective	1 Credit Lec: 15 Lab: 0	Lecture	This course teaches principles of Poultry Health. Students will gain knowledge of avian (poultry) clinical anatomy and physiology, nutrition, basic management, clinical signs of common diseases / disorders, generation of differential diagnoses lists, development of diagnostic plans, treatment, control, and prevention strategies. The course stresses critical thinking and problem solving.
Animals In Society Elective	1 Credit Lec: 15 Lab: 0	Lecture	This elective course takes a deeper dive into the role animals play in society. It covers topics like the human-animal bond, benefits to people of animal ownership, various roles animals play (companion, recreation, sport, work, therapy, food, etc.), trends in animal ownership, economics, and policy. The responsibilities and obligations of veterinarians, as major providers of healthcare, will be included.
Introduction To Veterinary Emergency & Disaster	1 Credit Lec: 10 Lab: 8	Lecture, Lab	This course introduces the concepts and issues involved in veterinary emergency and disaster medicine at the local, national, and international level. Lectures, case studies, table-top exercises, hands-on laboratories, and simulations will be used to train basic response processes and techniques. Online Federal Emergency Management Agency (FEMA) courses will be used to build background training.

Management Elective			Deployment to actual disasters and emergencies may be possible depending upon circumstances.
Veterinary Innovation And Entrepreneurship Elective	1 Credit Lec: 15 Lab: 0	Lecture, Technology	This elective course provides a look into the future of veterinary healthcare, including evolving trends (e.g., technologies, digital health, telehealth, artificial intelligence, AI, GPT, robotics, 3D printing and care that is personalized, integrated, continuous). Insights into development and adoption of innovations will be explored. Students interested in entrepreneurship will be exposed to basic elements of healthcare ventures.
Veterinary Legislative Advocacy Elective	1 Credit Lec: 15 Lab: 0	Lecture	This elective course reveals how the legislative process works and how legislation affects the profession of veterinary medicine and the animals it serves, including companion animals, farm animals, and wildlife species. Current relevant legislation will be explored.
Public Service For Veterinarians Elective	1 Credit Lec: 15 Lab: 0	Lecture	This course is presented with the Clinton School of Public Service and provides an introduction to the foundations of public service and leadership tools needed to impact communities and enact change.
Veterinary Industry Pharmaceuticals, Biologicals, & Diagnostics Elective	1 Credit Lec: 15 Lab: 0	Lecture	This elective course involves exposure to major pharmaceutical company and covers topics such as: value of industry to the veterinary profession, benefits of practitioner partnerships with industry, overview of FDA vs compounded products, path for taking a product to market, career opportunities for veterinarians. It is especially pertinent to students with interest in a career in veterinary pharmaceutical industry.

Required Clinical Year Courses Semesters 7, 8, 9		
Rotation Title	**# Weeks # Credits**	**Rotation Description**
Small Animal General Practice Clinical Rotation	4 weeks 4 credits	The course consists of supervised clinical instruction in a selected, pre-approved, high quality, small animal general practice (canine, feline, pocket pets). Students see a wide variety of medical and surgical cases and are active participants in their diagnostic and therapeutic management, to include documentation of findings and care in problem-oriented medical records and performance of clinical procedures.
Specialty Practice Clinical Rotation	4 weeks 4 credits	The course consists of supervised clinical instruction in a selected, high quality, specialty practice focusing on small animal species, primarily canine and feline. Instruction will take place in practices with board certified internists, radiologists, surgeons, anesthesiologists, or other specialists, and/or access to those specialists. Students are active participants in diagnostic and therapeutic management of a wide variety of cases with instructive pathophysiological learning issues requiring appropriate medical and/or surgical management in veterinary advanced care, emergency, and critical care situations.
Or:		

Specialty Practice Clinical Rotation "Selective"	4 weeks 4 credits	The course consists of supervised clinical instruction in a selected, high quality, specialty practice. Species of focus or interest can include canine, feline, lab animal, exotic, zoological, equine, and/or food animal depending on the interest and career goals of the student. Instruction will take place in practices with board certified internists, radiologists, surgeons, anesthesiologists, or other specialists, and/or access to those specialists. Students are active participants in diagnostic and therapeutic management of a wide variety of cases with instructive pathophysiological learning issues requiring appropriate medical and/or surgical management in veterinary advanced care, emergency, and critical care situations.
Small Animal Primary Care - Shelter Medicine	4 weeks 4 credits	The course consists of supervised clinical instruction in the medical and surgical areas of a busy community shelter practice. Students will receive an introduction to all aspects of shelter operations and gain a better understanding of the challenges that animal shelters encounter. Students will learn why and how animals are admitted to shelters, behavior and enrichment strategies used in this environment, and how community engagement leads to successful adoptions.
Small Animal Primary Care – Shelter Medicine (Virtual)	4 weeks 4 credits	The course consists of supervised instruction in the medical and surgical areas of a busy community shelter practice. Students will receive an introduction to all aspects of shelter operations and gain a better understanding of the challenges that animal shelters encounter. Students will learn why and how animals are admitted to shelters, behavior and enrichment strategies used in this environment, and how community engagement leads to successful adoptions. Veterinarians and other subject matter experts participating in the course will discuss preventive, medical, and surgical care options for shelter animals with the students, including the review of physical examinations, develop problem lists and determine differential diagnoses on shelter animals. After discussing their findings with a veterinarian, students will then formulate diagnostic and treatment plans for their patients. Students will develop surgical skills through learning about various techniques utilized in spay/neuter procedures. Students will gather patient history and perform animal examinations on client

		owned animals through simulated activities. Students may also have the opportunity to participate in discussions regarding dentistry procedures and attend presentations by human officers. Communication practice revolving around the care received at preventative health clinics will also be offered. Students may be required to make formal case presentations to others during the course. The virtual course is composed of discussions regarding the medical and surgical care of animals, presentations, self-study, case write ups, and working with members of various shelter departments.
Diagnostic Veterinary Medicine	2 weeks 2 credits	The course is a 2-week rotation during which the students will receive senior level training in diagnostic pathology and 10 ancillary diagnostic services, including bacteriology, virology, molecular biology, serology, toxicology, clinic al receiving, histology, parasitology, clinical pathology, and epidemiology. The course is composed of lecture/cooperative/active /group and self-learning sessions. The students will also perform postmortem at a state or university veterinary diagnostic laboratory necropsy floor or will work on diagnostic case studies and allied diagnostic services assignments. The students will also give diagnostic pathology case presentations on real case submissions to the diagnostic laboratory and will receive clinical pathology assignments. The clinical pathology assignments are composed of cytology slides collected from case submissions and the students are asked to read the slides using microscopes and submit their diagnostic reports.
Diagnostic Veterinary Medicine - Virtual	2 weeks 2 credits	The course is a 2-week rotation during which the students will receive senior level training in diagnostic pathology and ancillary diagnostic services, including bacteriology, virology, molecular biology, serology, toxicology, clinical receiving, histology, parasitology, clinical pathology, and epidemiology. The course is composed of lecture/cooperative/active/group and self-learning sessions. The students will spend sessions remotely observing postmortem examinations performed on the necropsy floor of a state or university veterinary diagnostic laboratory (with two-way audio/video for Q&A) or will work on diagnostic case studies and allied diagnostic services assignments. The students will deliver diagnostic pathology case

		presentations on case submissions and will receive clinical pathology assignments. The students will read the slides that are shared virtually and will write and submit their diagnostic reports.
Large Animal Rotation	4 weeks 4 credits	Students will be introduced to diagnostic and therapeutic procedures for large animals including internal medicine cases, bovine lameness, herd and flock health consultation and routine procedures, ophthalmology procedures, diagnostic imaging, equine lameness examination, reproductive technology, bandaging and wound care, dental procedures, anesthesia, and general surgical procedures using a combination of live animals, models, technologies, and cadavers. Students will demonstrate continued communications skills development including communication with owners through written discharge instructions and communication with colleagues via referral letters.
Or:		
Equine (Large Animal Alternate) Rotation	4 weeks 4 credits	Students with a high interest in equine practice, who have demonstrated basic skills in the handling of this species, will be approved by members of the faculty to complete their large animal rotation at high quality clinical affiliate sites, in lieu of completing their large animal rotation. These locations will introduce and/or reinforce diagnostic and therapeutic procedures for horses, including internal medicine, surgery, lameness evaluation, sports medicine, herd health and wellness, routine procedures, diagnostic imaging, reproductive management, bandaging and wound care, dental procedures, and anesthesia. Students will continue to develop their communication skills. If this course is being completed at a mixed animal practice, the student needs to construct the activities such that a minimum of 90% of their cases are equine focused.

Large Animal Rotation - Virtual	4 weeks 4 credits	Students will be introduced to diagnostic and therapeutic procedures for large animals in a virtual environment and will include internal medicine cases, bovine lameness, herd and flock health consultation and routine procedures, ophthalmology procedures, diagnostic imaging, equine lameness examination, reproductive technology, bandaging and wound care, dental procedures, anesthesia, and general surgical procedures using a combination of live animals, models, technologies, and cadavers. Students will demonstrate continued communications skills development including communication with faculty through exercises demonstrating written discharge instructions and communication with colleagues via referral letters.
North American Veterinary Leadership Examination (NAVLE) Administration	3 weeks 3 credits	This is a Required Course offered in fall semester. Students will prepare and sit for the North American Veterinary Licensing Exam (NAVLE®). Students will conduct independent studies and review in preparation for the NAVLE®. Students are not required to pass the NAVLE® to pass the course.
Clinical Year Assessment	1 week 1 credit	This required course is offered to students at the conclusion of the clinical year rotation blocks to assist in their transition from veterinary student to DVM. Course design involves a multifaceted approach to content delivery through exit surveys, financial literacy education, veterinary imaging monitoring verification, and interactive professional communication. This course includes four internal CVM programmatic surveys: (1) CVM Graduating Senior Survey; (2) AVMA Graduating Senior Survey; (3) Doctors Without Quarters (DWQ) education seminar; (4) submission of dosimeter badge and various communication activities. Students will have access to online education materials and learning tools provided by the CVM, AVMA, etc. Instructors will track individual student progress in each respective learning unit by tracking performance metrics provided by the CVM Outcomes Assessment program. The course assignments and self-directed completion of units will span approximately 2-4 weeks.
Clinical Diagnostic Imaging	2 weeks	This course will provide a structured means for students in the clinical year of the DVM program to apply and synthesize the knowledge gained in the pre-clinical training into the

	2 credits	clinical setting. Students will use the knowledge and skills gained in a Radiology Short Course to perform radiographic interpretation during their clinical placements.
Advanced Clinical Pathology Rotation	2 weeks 2 credits	This course will build on the core concepts of clinical pathology presented earlier in the curriculum, while fostering higher-level interpretation of laboratory data. Clinical biochemistry, hematology, urinalysis, cytology, and molecular diagnostics will be reviewed in this course, which can be asynchronous and virtual course.
Clinical Rotation	2 weeks 2 credits	This course consists of supervised clinical instruction in high quality learning experiences available at institutions and practices in North America and around the world, to include specialty practices (such as medicine, surgery, cardiology, dermatology, neurology, oncology, ophthalmology), species-specific practices, other accredited Colleges of Veterinary Medicine, zoos, and other LCSVM approved public and private biomedical institutions. Students are active participants in their elective rotations, participating in a wide variety of cases with instructive learning issues and situations to which they will be exposed. Elective clinical rotations either can be selected from a preapproved list or can be requested by submitting a proposal and receiving approval through the LCSVM Clinical Programs and Outreach Office.
Elective Clinical Year Courses Semesters 7, 8, 9		
Rotation Title	**Number of weeks/ credits**	**Rotation Description**
Externship Clinical Rotation Elective	2 weeks 2 credits	This course consists of supervised clinical instruction in high quality learning experiences available at institutions and practices in North America and around the world, to include specialty practices (such as medicine, surgery, cardiology, dermatology, neurology, oncology, ophthalmology), species-specific practices, other accredited Colleges of Veterinary Medicine, zoos, and other LCSVM approved public and private biomedical institutions. Students are

		active participants in their rotations, participating in a wide variety of cases with instructive learning issues and situations to which they will be exposed upon graduation. Elective externship clinical rotations are submitted and approved through the LCSVM Clinical Programs and Outreach Office.
Advanced Dentistry Small Animal Clinical Rotation Elective	2 weeks 2 credits	This elective course is a continuation of small animal dentistry and is focused on the diagnosis, treatment, and prevention of common dental conditions of canine and feline patients which are typically seen in small animal general practice.
Poultry Medicine Industry Elective	4 weeks 4 credits	This course exposures students to the role poultry veterinarians play in providing healthcare in commercial poultry operations. They will learn examination, flock behavior, vaccinations, inspections, sample collection and analysis, nutritional assessment, and flock health management procedures. They will gain appreciation for the poultry industry in Arkansas that represents its largest agricultural product and accounts for 1 in 4 of its agricultural jobs, the Poultry Federation that serves it, and its major poultry companies.
Veterinary Medical Scientist Research Training Elective	4 weeks 4 credits	This research-intensive experience will provide a concentrated 4-week research training program during Semester 6. Students will be immersed in a mentored research activity with LCSVM faculty oversight. It is possible for students to participate in the National Veterinary Scholars Symposium in August of this semester. To accomplish an 8-week experience two of these elective rotations could be scheduled sequentially.
Veterinary Virtual Care, Telehealth, Telemedicine Elective	2 weeks 2 credits	This elective course provides the student with first-hand experience with virtual care/ telemedicine and telehealth. The clinical focus can be small animals, horses, food animals, or combination. The experience can be a blend of on-site and virtual participation with cases managed virtually by a practicing veterinarian. Telemedicine platforms will be explored.
North American Veterinary Licensing	2 weeks	This course is offered to students in the fourth year of the curriculum as an elective to assist in preparation for the North American Veterinary Licensing Examination. Course design involves

Examination (NAVLE) Prep Rotation	2 credits	a multifaceted approach to content delivery through review sessions, case-based problem solving, online educational resources/testing modules, and structured self-directed study.

CLINICAL ROTATIONS SEMESTERS 7, 8, 9			
Required Courses - Provide all students basic, broad clinical experiences to prepare students for additional clinical experiences			
Foundation Courses	Small Animal General Practice Foundations	4 weeks	20 weeks
	Small Animal Specialty Practice Foundations	4 weeks	
	Diagnostic Medicine/Pathology Foundations	2 weeks	
	Large Animal Diagnostics Foundations	2 weeks	
	Diagnostic Medicine/Radiology Foundations (virtual)	2 weeks	
	Diagnostic Medicine/Clinical Pathology Foundations (virtual)	2 weeks	
	NAVLE Preparation Block – Mandatory Block SIX	4 weeks	
Elective Courses - Include small animal, large animal, and mixed animal practices that may be general, specialty, exotic, zoo, and poultry practices. Also included are research rotations. Students are allowed to make their own proposals for 2 of the 4-week rotations.			
Elective Courses	Elective Clinical Rotation	12 weeks	28 weeks
	Elective General Practice Rotation	4 weeks	
	Elective Specialty Practice Rotation	4 weeks	
	Student Proposed Elective Clinical Rotation	4 weeks	
	Student Proposed Elective Clinical Rotation	4 weeks	
Required Experiences These required experiences are twofold: (1) help students take the NAVLE examination; and (2) provide a series of experiences designed to help launch students into successful careers. The final week of clinical rotations is the clinical launch week.			
Required Experiences	NAVLE Test Window (no credit)	3 weeks	4 weeks
	Clinical Launch	1 week	
			52 weeks

Appendix II Letters of Support

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Cover Sheet for In-State Institutions
New Program or Substantial Modification to Existing Program

Institution Submitting Proposal	University of Maryland Eastern Shore

Each action below requires a separate proposal and cover sheet.

- (●) New Academic Program
- ( ) New Area of Concentration
- ( ) New Degree Level Approval
- ( ) New Stand-Alone Certificate
- ( ) Off Campus Program
- ( ) Substantial Change to a Degree Program
- ( ) Substantial Change to an Area of Concentration
- ( ) Substantial Change to a Certificate Program
- ( ) Cooperative Degree Program
- ( ) Offer Program at Regional Higher Education Center

Payment Submitted: ( ) Yes ( ) No

Payment Type: (●) R*STARS # JE351041 ( ) Check # JE351041

Payment Amount: 850

Date Submitted: 9/12/2023

Department Proposing Program	School of Veterinary Medicine	
Degree Level and Degree Type	Doctoral	
Title of Proposed Program	Doctor of Veterinary Medicine	
Total Number of Credits	110	
Suggested Codes	HEGIS: 1218.00	CIP: 1.8001
Program Modality	( ) On-campus ( ) Distance Education (fully online) (●) Both	
Program Resources	(●) Using Existing Resources ( ) Requiring New Resources	
Projected Implementation Date (must be 60 days from proposal submisison as per COMAR 13B.02.03.03)	(●) Fall ( ) Spring ( ) Summer	Year: 2026
Provide Link to Most Recent Academic Catalog	URL: http://catalog.umes.edu/content.php?catoid=25&navoid=763	
Preferred Contact for this Proposal	Name: Moses T. Kairo	
	Title: Professor and Dean	
	Phone: (410) 651-6072	
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President/Chief Executive	Type Name: Heidi M. Anderson	
	Signature: Heidi M Anderson	Date: 10/15/2023
	Date of Approval/Endorsement by Governing Board:	

Revised 1/2021

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