NEW PROGRAM / CERTIFICATE PROPOSAL FORM

(More than 50% of the courses are new and created for this program)

(Also requires Arkansas Department of Higher Education (ADHE) approval)

[ ]   Undergraduate Curriculum Council

[x]   Graduate Council

Signed paper copies of proposals submitted for consideration are no longer required. Please type approver name and enter date of approval.

N/A   ENTER DATE
Department Curriculum Committee Chair

                                    ENTER DATE
COPE Chair (if applicable)

N/A   ENTER DATE
Department Chair

Jennifer Bouldin   3/3/2023
Head of Unit (if applicable)

Mary Elizabeth Spence   3/3/2023
Office of Accreditation and Assessment

N/A   ENTER DATE
Undergraduate Curriculum Council Chair

N/A   ENTER DATE
College Curriculum Committee Chair

                                    ENTER DATE
Graduate Curriculum Committee Chair

Mickey Latour   3/3/2023
College Dean

Len Frey   3/3/2023
Vice Chancellor for Academic Affairs

N/A   ENTER DATE
General Education Committee Chair (if applicable)

i. Contact Person (Name, Email Address, Phone Number)
    Mickey Latour
    mlatour@astate.edu
    870-972-2802

    Jennifer Bouldin
    jbouldin@astate.edu
    870-972-2570

ii.Proposed Program Title
    Doctor of Veterinary Medicine

iii. Proposed Starting Date
    Fall 2025

iv. Is there differential tuition requested? *If yes, please fill out the New Program/Tuition and Fees Change Form.*
    No differential tuition is being requested.

v.   Will this program be offered:
    a.   **Traditional/Face-to-face** YES
    b.   **Distance/Online** Yes
            i.   If yes, indicate mode of distance delivery, and the percentage of courses offered via this modality (<50%, 50-99%, or 100%).
            Less than 10% of coursework will be delivered online. The courses offered will relate to professional skills.
            ii. **If online, will it be offered through Global Initiatives/Academic Partnerships (AP)?**
            No.
    c.   **Concurrent (High School Students)** NO
            No.

vi. Graduate programs only: Will this program require a comprehensive exam?

A comprehensive exam will not be a part of the program, as all graduates will take the veterinary licensure exam.

Program Justification

1. Justification for the introduction of the new program. Must include:

    a.   Academic rationale

    Arkansas State University (A-State) developed from an agricultural school founded on April 1, 1909 by Act 100 of the 37th Arkansas General Assembly. Today, A-State is a comprehensive university (BS, MS and PhD programs) and in 2018, A-State became classified as a 'high research activity,' or R2 institution. The category is based upon our current level of a minimum of $5 million in research the past two years (https://www.astate.edu/news/arkansas-state-moves-into-carnegie-doctoral-universities-classification-for-research-institutions) and among the 133 other universities with notable institutions like Boise State, Texas Christian University, University of Idaho, Villanova University, etc. To complement the move to R2 classification, the university moved forward with a new Strategic Plan, *Discover 2025,* that outlined strategies to embrace our momentum, strengthen our national reputation, increase impact as an economic, and be the educational engine in Northeast Arkansas.

    The strategic plan for Arkansas State University, (https://www.astate.edu/strategicplan/files/Discover+2025+-+Booklet.pdf), *Discover 2025*, states as part of Goal 2: Teaching & Learning the university will establish of a College of Veterinary Medicine and create a Doctor of Veterinary Medicine program to be housed in that College. Currently, the university has a bachelor's in agriculture in animal science, with an emphasis in pre-veterinary medicine housed in the College of Agriculture and a BS in Biological Sciences housed in the College of Sciences and Mathematics. These degrees prepare students for continued education in a Doctor of Veterinary Medicine. In the last three years, approximately 360 students have graduated from these programs at Arkansas State University and those who wished to pursue a Doctor of Veterinary Medicine degree have had to seek veterinary schools outside the state, as there are there are no veterinary schools currently located in Arkansas.

Veterinary medicine is a branch of medicine that targets the prevention, management, diagnosis, and treatment of disease, disorder, and injury in animals. Additionally, it deals with animal rearing, husbandry, breeding, research on nutrition, and product development (food and/or medicines). The overall scope of veterinary medicine is broad, covering all animals and the need for veterinarians is growing. In a recent publication by J. Lloyd (2019), *Tackling the Veterinary Professional Shortage*, he indicated that as of 2019 there were approximately 116,000 practicing veterinarians in the United States. The majority (approximately 66%) of them are working in companion animal practice. He noted that pet ownership has grown consistently and surmised that if pet ownership in the US continues at the current rate, the United States will need approximately 41,000 more veterinarians by 2030. Unless veterinary schools expand enrollment or new veterinary schools are developed, the profession will fall short of that goal by about 15,000. In short, he indicated that with the current graduation rates of new doctors of veterinary medicine, it will take more than 30 years of graduates to meet the 10-year industry need. The average incoming cohort size for veterinary school is approximately 100 and that number reflects the complexity of education/facilities needed to train people.

While the shortage in veterinarians has increased, pet care ownership has increased. In 2030, the pet population is expected to be approximately 102 million dogs and 82 million cats. As the pet population has increased, appointments in veterinary practices have also risen -- up 6.5% in 2021. Overall, US pet healthcare spending is predicted to increase 33% by 2030.

Collectively, these data suggest a strong demand for veterinary services and in the present state (given current rates of growth in veterinarians and demand), the profession will be unable to meet what is needed. Adding to the challenge, approximately 2,000 veterinarians are retiring each year. In order to replace those retiring, 18,050 companion animal veterinarians are needed by 2030 to restore the population of those expected to retire; an additional 22, 909 would be needed to accommodate the growth in the pet market. The future for new or expanded veterinarian programs is bright assuming the projections made by Dr. Lloyd.

Differences in veterinarian populations across the US can be attributed to many factors, but the higher concentrations are California, Florida and New York, which are more densely populated regions. Also, the number of veterinarians is high throughout the Corn Belt, where agriculture is a major part of the economy. Like the Corn Belt, the Number 1 industry in Arkansas is Agriculture. Consistent with the need for companion animal growth in the US, Arkansas has a high need for large animal and food animal veterinary services. Arkansas ranks 2nd in boilers (https://www.wattagnet.com/articles/45267-top-broiler-producing-states-differ-by-head-weight), 11th in beef cattle (https://beef2live.com/story-ranking-states-beef-cows-0-108181), 24th in equine (https://datapaddock.com/) and produces 1.2 million pigs annually (https://datapaddock.com/). Hence, growth in Arkansas veterinarian care would have a positive impact on companion and food animal production in the Natural State.

To advance a new veterinary school at A-State, we will utilize a distributed model curriculum, a model similar to the NYIT College of Osteopathic Medicine on the A-State campus. Within a distributed model, students complete their coursework on-campus, but complete internships and rotations in approved veterinary locations, which may be anywhere in the United States. The distributed model is gaining momentum in veterinary medicine (Texas Tech, Lincoln Memorial University, University of Arizona) with real-world clinical collaborators to provide an immersive, cost-effective, high-caseload, and hands-on experience. Under this model, students and teachers are no longer constrained by the limitations of a teaching hospital. Embracing this model allows students to participate in real world timely cases through leading partners.

See Appendix A for a copy of the *AVMA Statement on Workforce* (July 2022) and the Full Justification.

b. List program goals (faculty or curricular goals.)

1. Comprehensive patient diagnosis (problem solving skills), appropriate use of clinical laboratory testing, and record management; 2. Comprehensive treatment planning including patient referral when indicated; 3. Anesthesia and pain management, patient welfare; 4. Basic surgery skills, experience, and case management; 5. Basic medicine skills, experience and case management; 6. Emergency and intensive care case management; 7. Health promotion, disease prevention/biosecurity, zoonosis, and food safety; 8. Client communications and ethical conduct; and 9. Critical analysis of new information and research findings relevant to veterinary medicine

c.   Will this program be accredited or certified? YES

If Yes, name the accrediting or certifying agency. American Veterinary Medical Association, Council on Education (AVMA-COE)

What are the steps for candidacy or initial accreditation? Please include a timeline for each step:
AVMA requires the following: That the institution is accredited (HLC); the institution is authorized by the government to develop a program that will confer a professional degree (ADHE approval); and the institution employs a veterinarian as dean or chief executive officer of the college of veterinary medicine on a full-time basis. The following is a tentative timeline based on the best estimation. Overall, AVMA accreditation takes a minimum of 2 years to complete. The following is the process: 1) apply for AVMA-COE consultative site visit; 2) preparation of comprehensive self-study (due six weeks prior to visit); 3) consultative report issued by AVMA-COE within 45 days of visit; 4) dean's response to consultative report (due 30 days after received); 5)AVMA-COE considers dean's report (reviewed at regular meetings held twice annually); 6) apply for "Reasonable Assurance" comprehensive visit; 7) Comprehensive visit; 8) Draft report of evaluation; 9) dean's response to the report evaluation (due 30 days after received); 10) AVMA-COE considers response and (if appropriate) issues a "Final Report of Evaluation" to include a "Letter of Reasonable Assurance."

d.   Student population served.

It is expected that beginning in the first year, 120 students will be admitted into each cohort. Of those students, it is anticipated that 50% (60) will be Arkansas residents. Of the other 50%, applications will be accepted from all over the United States. As described in this document, potential students complete an application through the VMCAS system. They are then able to apply to multiple schools.

Program Assessment

University Outcomes

2. Please indicate the university-level student learning outcomes for which this new program will contribute. Please complete the table by adding program level outcomes (PLO) to the first column, and indicating the alignment with the university learning outcomes (ULO). If you need more information about the ULOs, go to the University Level Outcomes Website.

	ULO 1: Creative & Critical Thinking	ULO 2: Effective Communication	ULO 3: Civic & Social Responsibility	ULO 4: Globalization & Diversity
Comprehensive patient diagnosis (problem solving skills), appropriate use of clinical laboratory testing, and record management;	x	x		

Comprehensive treatment planning including patient referral when indicated		x	x	
Anesthesia and pain management, patient welfare	x			
Basic surgery skills, experience, and case management	x			
Basic medicine skills, experience and case management	x			
Emergency and intensive care case management	x	x		
Health promotion, disease prevention/biosecurity, zoonosis, and food safety	x	x		
Client communications and ethical conduct		x	x	x
Critical analysis of new information and research findings relevant to veterinary medicine		x	x	

Program Learning Outcomes

3. Provide outcomes that students will accomplish during or at completion of this program. Fill out the following table to develop a continuous improvement assessment process.

For further assistance, please see the 'Expanded Instructions' document available on the UCC - Forms website for guidance, or contact the Office of Assessment at 870-972-2989.

Note: Best practices suggest 4-7 outcomes per program; minors would have 1 to 4 outcomes.

Comprehensively, the Doctor of Veterinary Medicine program will be assessed through successful completion of licensure/board examinations. Formatively, this program's assessment plan will be constructed by the school's Dean and faculty with the assistance of the Office of Assessment and Accreditation.

Outcome 1	Type outcome here. What do you want students to think, know, or do when they have completed the program?
Assessment Measure	Please include direct and indirect assessment measure for outcome.
Which courses are responsible for this outcome?	List courses.
Assessment Timetable	What semesters, and how often, is the outcome assessed?
Who is responsible for assessing and reporting on the results?	Who (person, position title, or internal committee) is responsible for assessing, evaluating, and analyzing results, and developing action plans?

LETTER OF INTENT – 1
(New Certificate or Degree Program)

1.   Institution submitting request: Arkansas State University

        Education Program Contact person/title: Dr. Len Frey, Interim Provost, Executive Vice Chancellor Finance, Administration & COO

        Telephone number/e-mail address: lfrey@astate.edu and 870-972-3303

2.   Proposed Name of Certificate or Degree Program: Doctor of Veterinary Medicine

3.   Proposed Effective Date: Fall 2025

4.   Requested CIP Code: 01.8001

5.   Program Description: The proposed Doctor of Veterinary Medicine will prepare students to prevent, control, diagnose, and treat diseases affecting the health of domestic and wild animals. This training will enable students to engage in the prevention of transmission of non-human animal diseases to humans and ensure a safe food supply for humans by monitoring and maintaining the health of food-producing animals

6.   Mode of Delivery (mark all that apply):
        x On-Campus

        x Off-Campus Location

        Provide address of off-campus location:

        • The Doctor of Veterinary Medicine will be developed using a distributed learning model for clinical experiences. The majority of coursework will be completed onsite. Only 4th year students will work at various locations with cooperating veterinary practices throughout the United States. Veterinary practices will be identified using criteria set out by the AVMA, including clinics with specific concentrations, appropriate caseloads, an interview process and housing considerations.

        Provide a copy of the e-mail notification to other institutions in the state notifying them of the proposed program. Please inform institutions not to send the response to **"Reply All"**. If you receive an objection/concern(s) from an institution, reply to the institution and copy ADHE on the email. That institution should respond and copy ADHE. If the objection/concern(s) cannot be resolved, ADHE may intervene.

Submit copy of written notification to Higher Learning Commission (HLC) if notification required by HLC for a program offered at an off-campus location.

    ____Indicate distance of proposed site from main campus.

    ____Distance Technology (50% of program offered by distance technology)

- Fourth (4th) year experiences will occur throughout the United States and will be treated as internships. Currently, multiple programs use this model. No notification is required to HLC for this standard.

Submit copy of written notification to HLC if notification is required by HLC for a program offered by distance technology.

- This program will not be considered a distance education program (over 50%) by HLC standards; however, notification will be complete to HLC for accreditation purposes following approval from the Board of Trustees.

7. List existing certificate or degree programs that support the proposed program:
   - BSA, Animal Science, Pre-Veterinary (CIP Code: 01.0901)
   - BS, Biological Sciences (CIP 26.0101)

8. President/Chancellor Approval   Date: March 3, 2023

9. Academic Affairs Officer: Len Frey   Date: March 3, 2023

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PROPOSAL – 1
NEW DEGREE PROGRAM

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1. **PROPOSED PROGRAM TITLE Doctor of Veterinary Medicine**

2. **CIP CODE REQUESTED 01.8001**

3. **PROPOSED STARTING DATE Fall 2025**

4. **CONTACT PERSON**
    Name (Provost/Academic Affairs Officer) Len Frey
    Title Interim Provost and Executive Vice Chancellor Finance, Administration and
    COO
    Name of Institution Arkansas State University
    E-mail Address lfrey@astate.edu
    Phone Number 870-972-3535

    Name (Program Contact Person) Mickey Latour
    Title Dean of Agriculture
    E-mail Address mlatour@astate.edu
    Phone Number 870-972-2802

    Name (Program Contact Person) Jennifer Bouldin
    Title Dean of Science and Mathematics
    Phone Number 870-972-2570

5. **PROGRAM SUMMARY**
    Provide a general description of the proposed program. Include overview of any
    curriculum additions or modifications; program costs; faculty resources, library
    resources, facilities and equipment; purpose of the program; and any information that
    will serve as introduction to the program.

    General Description: The proposed Doctor of Veterinary Medicine will prepare students to
    prevent, control, diagnosis, and treat diseases affecting the health of domestic and wild
    animals. In addition, Veterinarians are engaged in the prevention of transmission of animal
    diseases to people and ensure a safe food supply for people by monitoring and maintaining
    the health of food-producing animals.

    New Curriculum:
    DRVM 711V Academic Resilience
    DRVM 7115 Anatomy I
    DRVM 712V Physiology I
    DRVM 7121 Veterinary Histology
    DRVM 7123 Parasitology
    DRVM 7131 Veterinary Foundations I

DRVM 7141 Clinical Skills I
DRVM 715V Research Methods in Veterinary Medicine
DRVM 7161 Anatomy & Physiology Applied
DRVM 7132 Professional Life Skills I
DRVM 7151 Medical Science
DRVM 716V Veterinary Immunology
DRVM 717V Veterinary Virology
DRVM 714V Bacteriology & Mycology
DRVM 7171 Clinical Skills II
DRVM 7162 Animal Husbandry & Welfare
DRVM 7181 Basic Veterinary Pharmacology
DRVM 7214 Anatomy II
DRVM 7213 Veterinary Pathology I
DRVM 721V Toxicology
DRVM 7223 Clinical Pathology
DRVM 7233 Veterinary Foundations II
DRVM 724V Clinical Skills III
DRVM 7222 Veterinary Nutrition
DRVM 7242 Surgery I
DRVM 726V Surgery II
DRVM 725V Small animal Orthopedic Surgery III
DRVM 7232 Professional Life Skills II
DRVM 7243 General Pathology II
DRVM 7253 Diagnostic Imaging
DRVM 727V Clinical Skills IV
DRVM 7252 Anesthesia & Analgesia I
DRVM 7251 Integrated Diagnostics
DRVM 7382 Veterinary Pharmacology I
DRVM 7392 Veterinary Pharmacology II
DRVM 7314 Small Animal Medicine I
DRVM 7324 Small Animal Medicine II
DRVM 7322 Theriogenology
DRVM 7333 Food Animal Production & Health Maintenance I
DRVM 7343 Food Animal Production & Health Maintenance II
DRVM 7353 Equine Medicine & Surgery I
DRVM 7363 Equine Medicine & Surgery I
DRVM 7342 Clinical Skills V
DRVM 7332 Professional Life Skills III
DRVM 735V Introduction to Clinical Year
DRVM 7351 Avian & Exotic Animal Medicine
DRVM 7372 Clinical Skills VI
DRVM 7391 Practice Management
DRVM 7381 Radiology Interpretation
DRVM 7418 CR-Small Animal General Practice

DRVM 7424 CR-Specialty Practice
DRVM 7434 CR-Small Animal Shelter Practice
DRVM 7412 CR-Diagnostic Veterinary Medicine
DRVM 7442 CR-Large Animal
DRVM 7422 Clinical Diagnostic Imaging
DRVM 745V CRE-Elective Externship
DRVM 7433 NAVLE Administration
DRVM 7451 Assessment of Clinical Year

Resources
Current instructional facilities including classrooms, instructional equipment and technology, laboratories (if applicable)
- Online: Instructional facilities include classrooms with integrated learning technology including specialized software, audience response technology, and audiovisual capabilities. A-State faculty are provided with a computer including a camera and microphone when they are hired. This is the primary instructional equipment required for planning and preparing online courses. A-State is currently in the process of transitioning learning management systems to Canvas. Doctor of Veterinary Medicine faculty will have access to Canvas to build their online courses. For faculty on campus, the A-State Center for Excellence and Teaching recently constructed a state-of-the-art recording studio with audio and video equipment to enhance lectures.
- On-site: The university will utilize existing facilities, including classrooms, laboratories, and A-State farm facilities to meet the needs of Doctor of Veterinary Medicine faculty and students. Specific facilities used are described below and funds for renovating those spaces is included in #10.
- Instructional Equipment: Instructional equipment will be provided and is included in the budget estimates in #10.

Library Resources
- As of March 2023, the Dean B. Ellis Library contains 268 books in the online public access catalog with subject headings directly related to "Veterinary," "Animal Science," "Animal Husbandry," and/or "Animal Health." Additionally, 1,599 eBooks containing the subjects "Veterinary" and/or "Animal Health" are readily available with 197 of these titles published in the last five years. Further, the Library also provides access to 168 journals with the subject heading "Veterinary Medicine," the majority of which are available completely online. While the Library does not currently subscribe to any veterinary-specific databases, it does subscribe to 15 agricultural and scientific databases that include full-text articles on Veterinary Medicine. Interlibrary loan services are available to obtain limited loans of materials from other libraries that are not locally available.

Facilities and Equipment

Anatomy laboratory (large enough for 60 students min.)	Remodel and planned
Lecture halls (2 total - 120 students min. capacity each)	Utilizing existing lecture halls on-campus
Multipurpose wet lab (large enough for 60 students min.)	Remodel and planned
Multipurpose open labs (2 total - large enough for 40 students min.)	Remodel and planned
Surgery teaching lab (large enough for 60 students min.)	Remodel and planned
Farm animal teaching facilities	Renovate existing facilities

List degree programs or emphasis areas currently offered at the institution that support the proposed program.

- BSA, Animal Science, Pre-Veterinary (CIP Code: 01.0901)
- BS, Biological Sciences (CIP 26.0101)

6. **NEED FOR THE PROGRAM**

Submit Workforce Analysis Form or Employer Needs Survey (only when workforce data is deficient for the academic disciple within the proposal)

- See Appendix A for American Association of Veterinary Medical College (AAVMC) Statement on US Veterinary Workforce.

Employer Needs Survey should include the following: Submit numbers that show job availability, corporate demands and employment/wage projections, not student interest and anticipated enrollment. Focus mostly on state needs and less on regional and national needs, unless applicable to the program.

- N/A: Workforce Analysis is attached in Appendix A.

Survey data can be obtained by telephone, letters of interest, student inquiry, etc. Focus mostly on state needs for undergraduate programs; for graduate programs, focus on state, regional and national needs.

- N/A: Workforce Analysis is attached in Appendix A.

Provide names and types of organizations/businesses surveyed.

- N/A: Workforce Analysis is attached in Appendix A.

Letters of support should address the following when relevant: the number of current/anticipated job vacancies, whether the degree is desired or required for advancement, the increase in wages projected based on additional education, etc.

- N/A: Workforce Analysis is attached in Appendix A.

Indicate if employer tuition assistance is provided or if there are other enrollment incentives.

- N/A; no employer tuition assistance is provided.

Describe what need the proposed program will address and how the institution became aware of this need.

- The Doctor of Veterinary Medicine program will address a national and local shortage of veterinarians. This shortage has been well-documented in the media and reported by pet owners and agriculture professionals in Jonesboro, Arkansas and across the United States.

Indicate which employers contacted the institution about offering the proposed program.

- It is unknown if specific employers have contacted the university; however, multiple media outlets and professionals have reported a shortage of veterinarians.

Indicate the composition of the program advisory committee, including the number of members, professional background of members, topics to be considered by the members, meeting schedule (annually, bi-annually, quarterly), institutional representative, etc.

The steering committee is comprised of twelve (12) individuals who meet quarterly. During the development phase, the committee discussed topics related to approval of the program, accreditation, resources and other needs. Moving forward the steering committee will provide feedback to the dean of the College of Veterinary Medicine on topics related to accreditation, resource needs, community outreach, among other items.

- Dr. Mickey Latour (Dean, College of Agriculture)
- Dr. Jennifer Bouldin (Interim Dean, College of Sciences and Mathematics)
- Dr. Len Frey (Executive Vice Chancellor Finance, Administration and COO)
- Dr. Donald Kennedy (Associate Dean, College of Agriculture)
- Dr. William McLean (Associate Vice Chancellor for Faculty Relations)
- Dr. Thomas Risch (Vice Provost for Research and Technology Transfer)
- Dr. Melanie Wicinski (Assistant Vice Chancellor for Accreditation and Assessment)
- Dr. David Newman (Professor, Animal Science)
- Dr. John Hershberger (Associate Professor, Chemistry)
- Dr. Jerry Miller (Veterinarian)
- Mr. Randall Pope (Community Member)
- Ms. Arianne Pait (Director, Clinical Services in Communication Disorders; Equestrian Community Member)

Indicate the projected number of program enrollments for Years 1 – 3:

- The program is expected to enroll 120 students per cohort each year.

Indicate the projected number of program graduates in 3-5 years.

- The program is expected to graduate up to 120 students per year beginning in Spring 2029.

7. **CURRICULUM**
Provide curriculum outline by semester (include course number and title). Identify new courses (*in italics*) and provide course descriptions. Identify courses currently offered by distance technology (with an asterisk*) and endnote at the end of the document.

See Appendix B for the Curriculum outline.

Give total number of semester credit hours required for the program, including prerequisite courses.
- The full credit hours for each year are as follows:
  - Year 1 = 32
  - Year 2 = 35.5
  - Year 3 = 37
  - Year 4 = 48
  - Overall = 152.5

Identify required general education courses, core courses and major courses.
- No general education courses will be provided.

- All courses are core courses, including the 4th year rotations: DRVM 7418 CR-Small Animal General Practice, DRVM 7424 CR-Specialty Practice, DRVM 7434 CR-Small Animal Shelter Practice, DRVM 7412 CR-Diagnostic Veterinary Medicine, DRVM 7442, CR-Large Animal. DRVM 745V CRE-Elective Externship has a requirement of 22 hours and these elective rotations will be chosen according to their concentration.
- During fourth year rotations, students will choose their concentrations and externships will aligned with those choices.

For each program major/specialty area course, list the faculty member assigned to teach the course.
- Faculty will be assigned as needed to fill the positions. The program expects to hire faculty a semester before they are due to teach courses.

Indicate the number of contact hours for internship/clinical courses:
- The program will require a minimum of 35 contact hours per week for a minimum of 42 weeks.

State the program admission requirements:
Students interested in Veterinary School will place their materials in the Veterinary Medical College Application Service (VMCAS), which is the centralized application service for colleges of veterinary medicine. Through VMCAS students can complete one application and send their materials through this service to multiple veterinary medical schools.

In addition to the VMCAS requirements, candidates considered for admission to A-State College of Veterinary Medicine must meet the following requirements.

Minimum Academic Requirements:

- At least 43 semester or 62 quarter units from a regionally accredited college or university. *If a student intends to practice in the state of New York, they require at least 60 semester units.
- Minimum overall 2.8 GPA, or higher in all coursework as calculated by VMCAS. Students who do not meeting this criterion but have a GPA of < 2.8 and who have demonstrated a commitment to academic excellence in the last 2 years of study (most recent 40 semester hours) may be considered on a case by case basis.
- A-State College of Veterinary Medicine will require Pre-Requisite Coursework.   In order to fulfill the prerequisite, the coursework must meet the following criteria:
  - Courses must be completed at a regionally accredited college or university Courses must be completed with a grade of a "C-" or higher. Final grades for all prerequisite courses must be verified by A-State-CVM.
  - Courses for all science prerequisites must have been completed within the last 10 years of application. Science prerequisites include: Animal Breeding/Reproduction, Animal Nutrition, Biology, Genetics, Biochemistry, Advanced Science Electives, Organic Chemistry, General Chemistry, Physics, and Anatomy and/or Physiology. Courses must be 300 level or higher. Examples may include Anatomy, Cell Biology, Immunology, Microbiology, Anthropology, Economics, Geography, Philosophy, Political Science or Sociology. Also included: Ethics, Critical Thinking, Cultural Diversity, Social Responsibility, One Health, & Human-Animal Bond, Molecular Biology, Physiology, Calculus, or Virology, depending and completion of a minimum of 46 credit hours. In Progress or Planned Courses: Prerequisite courses can be "in progress" or "planned" at the time you submit your application, however official transcripts reflecting successful completion of those prerequisites must be submitted to A-State by the published deadlines. Advanced Placement (AP) credits: AP credits will be accepted for pre-requisite courses if they appear on an official college transcript with the subject and number of credits received and are equivalent to the appropriate college-level coursework. A generic listing of "AP credit" or "transfer credit" without the specific subject and number of credits will not be accepted.
  - Courses must be 300 level or higher. Examples may include: Anatomy, Cell Biology, Immunology, Microbiology, Molecular Biology, Physiology, or Virology, depending on the school's course numbering.

Describe specified learning outcomes and course examination procedures.

- Comprehensively, the Doctor of Veterinary Medicine program will be assessed through successful completion of licensure/board examination (North American Veterinary Licensing Examination, or NAVLE). Formatively, this program's assessment

plan will be constructed by the college's Dean and faculty with the assistance of the Office of Assessment and Accreditation.

Include a copy of the course evaluation to be completed by the student.

- The standard course evaluation provided to all Arkansas State University students will be utilized; however, once hired the dean and faculty may choose to add additional questions to evaluate each course. The Arkansas State University course evaluation can be found in Appendix C.

Include information received from potential employers about course content.
- Arkansas State University has no graduates, so potential employers have not provided any feedback at this time.

Provide institutional curriculum committee review/approval date for proposed program.
- March 16, 2023

8. **FACULTY**

List the names and credentials of all faculty teaching courses for the proposed program. Include college/university awarding degree; degree level; degree field; subject area of courses faculty currently teaching and/or will teach. (For associate degrees and above: A minimum of one full-time faculty member with appropriate academic credentials is required.)
Total number of faculty required for program implementation, including the number of existing faculty and number of new faculty. **For new faculty, provide the expected credentials/experience and expected hire date.**

The Program will have:
- 1 Dean with a Doctor of Veterinary Medicine
- 4 Associate Deans with a PhD, DVM, or equivalent
- 2 Department Chairs with a PhD, DVM, or equivalent
- 30 Faculty lines with a PhD, DVM, or equivalent with expertise in specific areas (e.g., parasitology; anatomy and physiology; etc.)
- 3 Veterinary Technicians with expertise in areas such as animal handling, etc.

Indicate lead faculty member or program coordinator for the proposed program.
- Until a Dean is hired, Dr. Mickey Latour (Dean, College of Agriculture) and Dr. Jennifer Bouldin (Dean, College of Sciences and Mathematics) will lead initiatives with commencement of this program.

For proposed graduate programs: Provide the curriculum vita for faculty teaching in the program, and the expected credentials for new faculty and expected hire date. Also, provide the projected startup costs for faculty research laboratories, and the projected number of and costs for graduate teaching and research assistants.

- Faculty Credentials: Faculty will be expected to have a PhD, DVM or equivalent with expertise in specific areas (e.g., parasitology; anatomy and physiology; etc.).

- Start-up costs for Faculty: The program will ramp up hiring – faculty will be hired a semester before they are needed, thus spreading start-up costs out until all courses are being offered.
- Graduate and Teaching Assistants: The program does not anticipate hiring graduate or teaching assistants.

9.   **DESCRIPTION OF RESOURCES**
     Current library resources in the field:

- As of March 2023, the Dean B. Ellis Library contains 268 books in the online public access catalog with subject headings directly related to "Veterinary," "Animal Science," "Animal Husbandry," and/or "Animal Health." Additionally, 1,599 eBooks containing the subjects "Veterinary" and/or "Animal Health" are readily available with 197 of these titles published in the last five years. Further, the Library also provides access to 168 journals with the subject heading "Veterinary Medicine," the majority of which are available completely online. While the Library does not currently subscribe to any veterinary-specific databases, it does subscribe to 15 agricultural and scientific databases that include full-text articles on Veterinary Medicine. Interlibrary loan services are available to obtain limited loans of materials from other libraries that are not locally available.

Current instructional facilities including classrooms, instructional equipment and technology, laboratories (if applicable)
- Classrooms and lab spaces within existing buildings will be utilized. Costs of renovating or updating those structures for use are included in the new program costs described in #10.

New instructional resources required, including costs and acquisition plan
- Existing resources on campus will be utilized. Any new resources needed are included in the new program costs located in #10.

10. **NEW PROGRAM COSTS – Expenditures for the first 3 years**
     Overall costs:
- Annual operating expenses:
  - Year 1 $7,114,296
  - Year 2 $8,182,296
  - Year 3 $11,198,296

New administrative costs (number and position titles of new administrators)
- Title: Dean
  Salary: $250,000
  Full-time/part-time position: 100% admin
  Total number of positions: 1
  Expected employment date: July 1, 2023

- Title: Associate Dean of Clinical Sciences
  Salary: $210,000

Full-time/part-time position: 50% admin, 50% teaching/research
Total number of positions: 1
Expected employment date: September 1, 2023

- Title: Associate Dean of Basic Sciences & Research
Salary: $210,000
Full-time/part-time position: 50% admin, 50% teaching/research
Total number of positions: 1
Expected employment date: September 1, 2023

- Title: Associate Dean of Clinical Relations & Outreach
Salary: $210,000
Full-time/part-time position: 100% admin
Total number of positions: 1
Expected employment date: January 1, 2024

- Title: Associate Dean of Student Affairs & Admissions
Salary: $210,000
Full-time/part-time position: 100% admin
Total number of positions: 1
Expected employment date: July 1, 2024

- Title: Department Chairperson
Salary: $200,000
Full-time/part-time position: 75% admin, 25% teaching/research
Total number of positions: 2
Expected employment date: July 1, 2024

Number of new faculty (full-time and part-time) and costs
- Number of faculty needed (includes administration) = 40
- Percent of faculty needed in Year 3 = 33%
- Number of administrators needed in Year 1 = 4

Faculty Salaries	AY23-24	AY24-25	AY25-26	AY26-27	AY27-28	AY28-29
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Administrators	$962,000	$1,683,500	$1,683,500	$1,683,500	$1,683,500	$1,683,500
Faculty	$0	$0	$1,517,340	$3,080,660	$4,598,000	$4,598,000
Total	$962,000	$1,683,500	$3,200,840	$4,764,160	$6,281,500	$6,281,500

New library resources and costs
- No additional library costs are anticipated.

New/renovated facilities and costs
- Renovation costs are included in the annual operating expenses provided above.

New instructional equipment and costs
- New equipment and costs are included in the annual operating expenses provided above.

Distance delivery costs (if applicable)
- Not applicable.

Other new costs (graduate assistants, secretarial support, supplies, faculty development, faculty/students research, program accreditation, etc.)

- All costs, including supplies, faculty development, research and program accreditation are included in operating costs located above.
- The college does not anticipate having graduate assistants.

If no new costs required for program implementation, provide explanation.

11. **SOURCE OF PROGRAM FUNDING – Income for the first 3 years of program operation**
    If there will be a reallocation of funds, indicate from which department, program, etc.
    - Reallocation of funds will not occur. Student tuition revenue, institutional reserves and bonds will cover all needed expenses.

    Provide the projected annual student enrollment, the amount of student tuition per credit hour, and the total cost of the program that includes tuition and fees.
    - Annual Student Enrollment (Enrollment of 120 students per year and retention of 98% annually)
        - Year 1 = 120
        - Year 2 = 238
        - Year 3 = 356
    - Semester – The college will use block tuition (same tuition despite credit hour load)
        - $17,000 per semester (Arkansas resident)
        - $27,000 per semester (Non-Arkansas resident)
        - Each cohort is expected to have 120 students and be comprised of 50% residents and 50% non-residents.
    - Overall Projected Revenue
        - Year 1 $5,280,000
        - Year 2 $10,472,000
        - Year 3 $15,576,000

    Indicate the projected annual state general revenues for the proposed program (Provide the amount of state general revenue per student).
   - The state will not be providing additional funds.

    Other (grants [list grant source & amount of grant], employers, special tuition rates, mandatory technology fees, program specific fees, etc.).
    - No additional fees will be charged.

12. **ORGANIZATIONAL CHART REFLECTING NEW PROGRAM**
    Proposed program will be housed in the new College of Veterinary Medicine. The following is the proposed organizational chart:
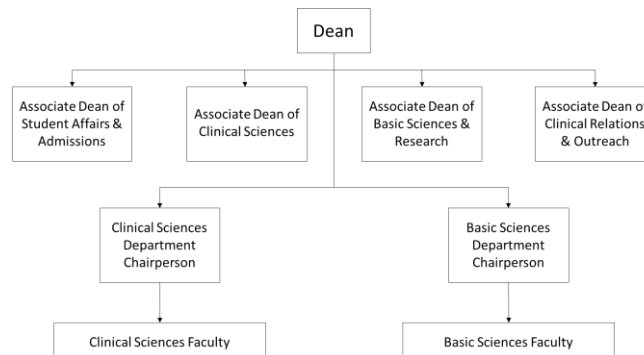
13. **SPECIALIZED REQUIREMENTS**
    If specialized accreditation is required for program, list the name of accrediting agency.
    - The Doctor of Veterinary Medicine (DVM) program will be accredited by the American Veterinary Medical Association, Council on Education (AVMA-COE).

    Indicate the licensure/certification requirements for student entry into the field.
    - Those entering the field must pass the North American Veterinary Licensure Exam (NAVLE). The licensure exam consists of 360 clinically relevant multiple-choice questions and is offered at computer testing centers throughout the United States. The test can be taken in 3 windows.

    Provide documentation of Agency/Board review/approvals (education, nursing--initial approval required, health-professions, counseling, etc.)
    - Not applicable

14. **BOARD OF TRUSTEES APPROVAL**
    Provide the date that the Board approved (or will consider) the proposed program.
    - *The Board of Trustees will consider the proposed program on March 10, 2023.*

    Provide a copy of the Board meeting agenda that lists the proposed program, and written documentation of program/unit approval by the Board of Trustees prior to the Coordinating Board meeting that the proposal will be considered.
    - *This will be provided when available.*

15. **SIMILAR PROGRAMS**
    List institutions offering program:

    Proposed doctoral program – list institutions in Arkansas, region, and nation (AVMA list)

    Arkansas:
    - Currently, no veterinary programs exist in Arkansas

    Region:
    - University of Illinois
    - Louisiana State University
    - University of Missouri
    - Mississippi State University
    - Oklahoma State University
    - University of Tennessee
    - Lincoln Memorial University
    - Texas A&M University
    - Texas Tech University

    Nation:
    - Auburn University
    - Tuskegee University
    - Midwestern University

- University of Arizona
- University of California
- Western University of Health Sciences
- Colorado State University
- University of Florida
- University of Georgia
- University of Illinois
- Purdue University
- Iowa State University
- Kansas State University
- Louisiana State University
- Tufts University
- Michigan State University
- University of Minnesota
- Mississippi State University
- University of Missouri-Columbia
- Cornell University
- Long Island University
- North Carolina State University
- The Ohio State University
- Oklahoma University
- Oregon State University
- University of Pennsylvania
- University of Tennessee
- Lincoln Memorial University
- Texas A&M University
- Texas Tech University
- Virginia Tech
- Washington State University
- University of Wisconsin-Madison

State why proposed program needed if offered at other institutions in Arkansas or region.
- According to J. Lloyd (2019), pet ownership has grown consistently and surmised that if pet ownership in the US continues at the current rate, the United States will need approximately 41,000 more veterinarians by 2030. Unless veterinary schools expand enrollment or new veterinary schools are developed, the profession will fall short of that goal by about 15,000. In short, he indicated that with the current graduation rates of new doctors of veterinary medicine, it will take more than 30 years of graduates to meet the 10-year industry need.
- Currently, the university has a bachelor's in agriculture in animal science, with an emphasis in pre-veterinary medicine housed in the College of Agriculture and a degree in Biological Sciences housed in the College of Sciences and Mathematics. Both of these degrees prepare students for continued education in a Doctor of Veterinary Medicine. In the last three years, approximately 360 students have graduated from these programs at Arkansas State University and, if they wanted to pursue a further education to become a veterinarian have had to seek veterinary schools outside the state, as there are there are no veterinary schools currently located in Arkansas.

List institution(s) offering a similar program that the institution used as a model to develop the proposed program.

- Arkansas reviewed programs at Lincoln Memorial University, University of Missouri, Mississippi State, and Louisiana State University. Provided curriculum was modeled after the program currently offered at Lincoln Memorial University.

Provide a copy of the e-mail notification to other institutions in the state notifying them of the proposed program. Please inform institutions not to send the response to **"Reply All"**. If you receive an objection/concern(s) from an institution, reply to the institution and copy ADHE on the email. That institution should respond and copy ADHE. If the objection/concern(s) cannot be resolved, ADHE may intervene.

- AAR will add following UCC approval.

Note: A written institutional objection/concern(s) to the proposed program/unit may delay Arkansas Higher Education Coordinating Board (AHECB) consideration of the proposal until the next quarterly AHECB meeting.

16. **DESEGREGATION**
Demographic data is available at the university level. In 2020, total enrollment at A-State was 12,925. A-State demographic data in 2020 indicated that students self-reported their race/ethnicity as African American (13.4%; n = 1,733), Hispanic (4.0%; n = 516), multiracial (2.3%; n = 292), and Asian (1.0%; n = 124).

17. **INSTITUTIONAL AGREEMENTS/MEMORANDUM OF UNDERSTANDING (MOU)**
Institutional agreements and/or Memorandums of Understanding will be developed Arkansas State System legal team for 4th year experiences.

18. **ACADEMIC PROGRAM REVIEW**
The program will seek accreditation from the American Veterinary Medical Association, Council on Education (AVMA-COE).

19. **PROVIDE ADDITIONAL INFORMATION IF REQUESTED BY ADHE STAFF**

20. **INSTRUCTION BY DISTANCE TECHNOLOGY**
- Arkansas State University (A-State) distance courses are established via consultation with the academic college and department that house the specific degree. The A-State Online office will meet with college and department faculty to lay out a plan and timeline for launch of the courses including course builds, rotation of courses, and state and accreditor compliance. The management and oversight, including selection of faculty, of the courses themselves is done by the academic department, however A-State Online does provide faculty support through instructional designers for assistance with Canvas, which is the learning management system used by A-State.

Describe the internal organizational structure that coordinates (development, technical support, oversight) distances courses/degrees.

- A-State has a team of faculty support specialists/instructional designers that are certified in Canvas, the institutional learning management system, to provide assistance to all faculty teaching online classes. Courses in the online programs are developed in a standardized module format and all are required to pass a Quality Matters (QM) review prior to launch to ensure they meet all essential standards as indicated by the QM rubric. All courses go through the rebuild/redevelopment process every two years to ensure the content remains current and always meet QM standards for accessibility, alignment, and overall best practices for online learning.
- Each academic college at A-State has an assigned faculty support specialist that provides continued support to the assigned course developer/instructor of the course. Instructors use development shells within Canvas to work on their course and that content is that transferred to the live shell at least one week prior to the course start date.

Summarize the policies and procedures to keep the technology infrastructure current.

- A-State staffs a full-time Information Technology Services (ITS) department that is responsible for the operation and upkeep of all online services for both faculty and students. The ITS department schedules maintenance and backups on a routine basis incorporating daily, weekly and monthly procedures that allow for 24/7 operation of all online systems with 99.97% uptime and availability.
- Enhancements and changes in software, hardware, and technical systems are communicated to both students and faculty by various channels. Several methods are used such as the university weekly online news bulletins where technology announcements can be made via email to both faculty and students. Faculty and staff are asked to inform students during class meetings and via their online course announcements.

Summarize the procedures that assure the security of personal information.

- To assure the protection of student identity and their personal information, A-State ensures the security and privacy through the institution's identity management policy. Security Sensitive Information Qualifiers (SSIQ's) are not released beyond the centralized server.
- For applications outside of the primary Enterprise Resource Planning (ERP) system, A-State assigns an alternate ID, which has no personal or information value beyond A-State applications. A-State employs multifactor authentication for all users that login to use the learning management system and the enterprise resource planning system.

Provide a list of services that will be outsourced to other organizations (course materials, course management and delivery, technical services, online payment, student privacy, etc.).

- Advising: Students are initially contacted via e-mail in which the advisor sends the student a degree plan and course recommendations along with all the information the student needs to register for the courses. If the student has questions they can contact the advisor via e-mail, phone, A-State Connect app or in person to get them answered. Advisors are required to connect with their students once a semester to see if they need any assistance and ensure that everything is going well with them.
- Course Registration: Students are provided step-by-step instructions on how to register for their courses via an online PowerPoint presentation. The link to the presentation is located in all advising and registration reminder e-mails, as well as the orientation class in Canvas. The students are given a schedule of courses with the

correct course registration numbers to register so they will be enrolled in the proper section of the course for the online programs. If students have trouble with registration, they can contact one of the registration coordinators by e-mail or phone for assistance.

- Financial Aid: A-State has a full team of financial aid coordinators that are dedicated to all academic programs. They are available to assist students through phone, e-mail, chat and through the A-State Connect app available on Android and iOS.
- Course Withdrawal: Students are allowed to withdraw from their courses through Banner Self-Service. The only exception is if they choose to drop all courses in a semester, and are required to have assistance in dropping the last course they are enrolled in for a semester. This allows for a review of their accounts to ensure everything is in order before dropping all classes. If a student wishes to drop the courses in a semester, but continue with the degree the following term, a withdrawal is not required—only dropping courses for that semester is required. If a student indicates they are leaving the program, the registration team processes the withdrawal in Banner.
- E-mail Accounts: Students are asked to activate their A-State student e-mail accounts as part of their admissions/registration process. The student e-mail is the main form of communication used by A-State. Students are required to use this email address when communicating with university faculty and staff.
- Access to Library Resources: Online access is available to students using their university login. Information for students about how to access the library is posted at https://degree.astate.edu/student-services.aspx.
- ITS Help Desk: The ITS Help Desk offers services to our students 24/7 to accommodate the different schedules and time zones the students are located. They are able to help them with technical support, log in issues with Banner Self-Service, Canvas, e-mail, and other issues for which students may require technical assistance.
- Writing Center: Students have access to tutoring and assistance to help develop their writing skills. The Writing Center staff consists of tutors from different writing backgrounds and assist with all stages of the writing process, from outlining and researching, to grammar and finalizing the paper. This resource is accessible through synchronous or asynchronous appointments.

Appendix A
Workforce Study

AAVMC
American Association of
Veterinary Medical Colleges

AAVMC Statement on U.S. Veterinary Workforce

Significant shortages of veterinarians exist across all sectors of professional activity and at all levels of specialization.[i] Although precise numbers are difficult to quantify and specific predictions about future needs are subject to interpretation, the available evidence indicates that these shortages are a result of systemic, long-term trends in pet ownership and demand for veterinary services, along with limited capacity for training veterinary professionals, and are expected to continue unless the veterinary medical profession takes action.

DEMAND

Since 1980, U.S. households that purchase veterinary services have steadily increased expenditures at an inflation-adjusted rate of 2.9% per year. When considered along with growth in the number of households purchasing such services over the past 10 years, overall demand for veterinary services in the U.S. pet healthcare market has been increasing at an inflation-adjusted rate of over 6% per year.

Because about 75% of U.S. veterinarians are engaged in pet healthcare, a shortage in this sector has dramatic effects on the rest of the profession. As a result of the shortage, compensation packages in companion animal practice have increased substantially in recent years. Anecdotal evidence suggests that these compensation packages have effectively made other career pathways comparatively less attractive, likely tipping the career-choice scales for many candidates. Although a shortage of veterinarians stemming from several complex factors has already been recognized for years in the food animal and public health sectors, increasing compensation in companion animal practice is exacerbating this pre-existing situation. Similar compensation-related impacts should be expected for other career options, including research, teaching, diagnostic medicine, clinician scientists, and government service.

The shortage of specialty-trained veterinarians is especially pronounced. Insufficient capacity in primary care is frequently leading to extended wait times for appointments, often resulting in patients that are more seriously ill on presentation, and thereby more likely to require referral to a specialist. In addition, because veterinary healthcare teams are feeling overworked and overwhelmed, cases are increasingly being referred to specialists or routed through emergency services due to already stretched capacity for thorough and thoughtful case work-up, diagnosis, and treatment/management in the general practice.

Recent analysis revealed that the number of open positions for specialists exceeds the number of anticipated candidates available in the current employment market by as much as four times. This situation is of particular concern for academic veterinary medicine, where as many

as 50% of the faculty are trained in a recognized clinical specialty. Because of specialists' critical roles in this segment of the market – teaching and research – a prolonged shortage could have a disproportionate negative impact across the industry for years to come on access to care and scientific discovery.

SUPPLY

Since 2007, the number of U.S. veterinarians has been increasing at a rate of only 2.7% each year, and a substantial shortage exists today. In 2019, there were 2,000-3,000 more open jobs than veterinarians available to hire. Since at least 2014, 20-30% of US veterinarians every year have expressed a desire to work fewer hours, even if it meant lower compensation. It would require 4,500 to 6,000 additional FTE veterinarians to fully meet the desire to work less.

One commonly suggested remedy for the veterinarian shortage is expanded and more effective use of non-veterinary staff, especially credentialed veterinary nurses/technicians. However, analysis of this U.S. market indicates that over 50,000 additional nurses/technicians are needed to maximize productivity in companion animal practice today. Further, it would take 30 years of these graduates at current training capacity to meet projected needs in 2030. Clearly, this is not an immediate solution.

IMPLICATIONS

Because of the current veterinary workforce shortage, veterinary healthcare teams are feeling overworked and overwhelmed – burnout is high. But there are also broader societal impacts:
- Animal welfare implications exist for millions of pets and other animals. With inadequate access to veterinary care, greater rates of morbidity and mortality are likely across animal species and surrender of pets is expected to occur with greater frequency.
- Restricted access to veterinary care for underserved pet owners will have disproportionate negative impact in historically disadvantaged communities, both in the near term and in the long run.
- The critical importance of pets to the overall wellbeing of humans, both physical and mental health, is becoming increasingly widely recognized. Assuring adequate access to veterinary healthcare will markedly improve public health, and decrease healthcare costs, for millions of pet owners.
- Zoonotic diseases – those that can be transmitted from animals to humans – are much more common than most people realize. In addition, the safety of animal-origin foods depends heavily on access to adequate veterinary care. From this perspective, the public health implications of a shortage of veterinarians are clear.
- For animal diseases and emergencies of major economic importance, such as African Swine Fever and Avian Influenza, veterinarians are our first line of defense for biosecurity, emergency preparedness and response. A veterinary workforce with inadequate capacity places our food systems and food security at risk.

ACTION

As a vital component of the U.S. healthcare and food systems, the veterinary workforce shortage warrants immediate attention. Although the situation is complex and multifactorial, several action steps should be considered:

- o Increase veterinary student recruitment and enrollment with particular emphasis on diversity, equity, and inclusion.
- o Explore innovative educational models and new training structures to increase capacity and minimize the total length of time for entry into the profession.
- o Increase capacity to train veterinary nurses and technicians.
    - Develop and expand both Associate (AS) and Bachelor (BS) degree programs.
    - Increase engagement in Veterinary Technician Specialist (VTS) programs.
    - Initiate a profession-wide discussion to consider a new mid-level professional, similar in concept to a nurse practitioner or physician assistant.
- o Enhance effectiveness of veterinary healthcare teams by encouraging a team-based approach to healthcare delivery so that each professional can work to the full scope of their training.
    - With progressive case management and care coordination in mind, clearly define distinct and complementary roles for credentialed veterinary nurses/technicians (trained at all levels), veterinarians, veterinary assistants, and a potential mid- level practitioner.
- o Encourage veterinarians to choose careers that contribute to addressing the critical needs of underserved populations and develop innovative business models to ensure economic sustainability of serving these markets.
- o Increase training capacity across veterinary specialties. Explore innovative training paradigms and collaborative public/private partnerships.
- o Develop an ongoing research initiative focused on the veterinary workforce, with initial emphasis on efficiency of healthcare delivery as it relates to staffing, workflow, turnover, and attrition/retention. In addition, develop a better understanding of demand for veterinary medical services to enable robust projections of workforce needs.

SUMMARY

The current shortage of veterinarians in the U.S. is having a significant impact on access to healthcare for animals and the wellbeing of the veterinary healthcare team. AAVMC stands ready to work with partners from academia, veterinary medical associations, industry, and other stakeholders to ensure that veterinary medical colleges, and higher education more generally, effectively respond to the current shortages.

Tackling the veterinary professional shortage. Mars Veterinary Health (March 2022). Available at:
https://www.marsveterinary.com/tackling-the-veterinary-professional-shortage/

Veterinary Medicine at Arkansas State University: Considerations for a New Program

James W. Lloyd, DVM, PhD
Animal Health Economics,
LLC June 23, 2022

Background

Arkansas State University (A-State, ASU) is considering the creation of a new academic program leading to the Doctor of Veterinary Medicine (DVM) degree. This report is based on data gathered through numerous interviews, a site visit, published sources, and internal (A-State) documents.

Why Veterinary Medicine?

The veterinary medical profession is currently facing a workforce crisis that includes historic shortages in veterinarians, veterinary nurses/technicians, and veterinary specialists.[1,2,3] Implications for this situation extend beyond the wellbeing of the veterinary workforce, and include potential widespread negative impacts on animal welfare, public health, business and the economy, and social justice.[1] Strongly rooted in the ongoing evolution of the human-animal bond, consumers' willingness to spend on pet healthcare has been increasing for at least 40 years.[4] Impacts of this remarkable trend clearly extend to the livestock and equine sectors as well, and the pattern is not expected to end anytime soon.

One of the key recommendations to address this issue is expanded enrollments across the American Association of Veterinary Medical Colleges (AAVMC) to increase the number of veterinary college graduates.[1] In that regard, considerations underway at A-State are both on- target and timely.

Why Arkansas?

The state of Arkansas is one of only 19 states that remain without either a wholly owned and operated college/school of veterinary medicine or a veterinary college/school that is operated jointly with another state. In fact, 6 states now have two colleges of veterinary medicine.
Further:
- In fall of 2021 (most recent data publicly available), 42 Arkansas residents were enrolled as first-year students in veterinary medical colleges/schools across the US.[5] It's likely that more were enrolled in Canadian and/or Caribbean institutions. This number has been demonstrating a decided upward trend, more than doubling since only 2017.
  - Even though this number has already been increasing, it would be expected to increase even more if a college/school of veterinary medicine was available

within the state of Arkansas. AAVMC data indicate that the top feeder schools for applicants to veterinary medical programs are those institutions with veterinary medical colleges/schools on campus.[6]

- o Although most of the 42 students would hopefully to return to Arkansas for employment on graduation, only 9 new Arkansas Health Education Grant Program awards are available each year for Arkansas residents pursuing veterinary medical education (all at Louisiana State University). The rest (33 students in 2021) are faced with the higher cost (approximately double) of non-resident tuition, and the likelihood of higher student debt loads.
    - ▪ The State of Arkansas is currently spending over $1M/yr for veterinary medical education through the Arkansas Health Education Grant Program.
- o Only two states without vet schools had a greater number of residents enrolled in US veterinary medical programs in fall 2021 – Kentucky (64) and South Carolina (47).
    - ▪ The University of Kentucky has a strong programmatic collaboration with Lincoln Memorial University (LMU). In addition, the state of Kentucky has contracts with Auburn University (38 students/yr) and Tuskegee University (3 students/yr). The remaining KY students (23 in 2021) most likely face non-resident tuition.
    - ▪ The state of South Carolina has contracts with the University of Georgia (19 students/yr), Tuskegee University (7 students/yr), and Mississippi State University (6 students/yr). The remaining SC students (15 in 2021) most likely face non-resident tuition.
- o In the current (2022) application cycle, a total of 70 Arkansas residents applied for admission across AAVMC member institutions. Their rate of success in gaining admission is not known at this point.
- Based on 2021 US Census data, 3 states with less population than Arkansas have veterinary medical colleges: Kansas, Mississippi, and Nebraska. Both Kansas and Mississippi have veterinary medical programs that are wholly owned and operated (at Kansas State University and Mississippi State University, respectively) and Nebraska operates a program jointly with Iowa (the University of Nebraska-Lincoln operates a joint program with Iowa State University).

Animal populations in Arkansas provide additional justification for creating a college/school of veterinary medicine. Consider the following:
- Based on national studies, it is estimated that nearly one million households in Arkansas own pets, including
    - o Over 660,000 dogs and
    - o Over 520,000 cats.

    The overall health, wellbeing, and longevity of these four-legged family members would clearly be enhanced by having a college/school of veterinary medicine in their home state.
- Arkansas agriculture has notable strength in food animal production across numerous species. In total, this industry generates over $6B annually in farm-gate revenue (2017

data), led by poultry and eggs, followed by beef cattle, aquaculture, hogs and pigs, and dairy. Having a veterinary college/school in Arkansas would help to assure:

- o Consistently strong animal health and wellbeing in livestock, poultry, and aquaculture production systems.
- o Manageable health-related risk and variability in animal agriculture productivity for these agribusinesses.
- o Reliable safety and quality for animal-origin foods.
- About 12,500 Arkansas farms owned equines in 2017, including a total of about 53,000 horses, ponies, mules, burros, and donkeys. The health and wellbeing of these important elements of rural life in Arkansas will also be enhanced by a college/school of veterinary medicine.
- Arkansas has a unique and diverse array of ecosystems within the state, ranging from the Delta to the Ozarks, and animals play a key role across the board.
  - o The health and wellbeing of animals in these ecosystems are crucial to greater ecosystem health. In addition, the health and vitality of animal populations provide an invaluable indicator – often an early indicator – of ecosystem health.
  - o Ecosystem health is extremely important for Arkansas:
    - Based on environmental quality and the possibility of zoonotic diseases, ecosystem health is critical to human health.
    - Healthy ecosystems are the foundation of a healthy tourism industry.

For all these reasons, a college/school of veterinary medicine in the state of Arkansas makes perfect sense.

Why Arkansas State University?

Within the state of Arkansas, A-State is well positioned to host a college/school of veterinary medicine based on the following factors:

- A-State has a strong core of faculty and academic programs in animal agriculture, including poultry, livestock, and equine.
  - o Existing livestock and equine populations at A-State provide an excellent foundation for developing a new program such as veterinary medicine.
  - o Existing animal agriculture facilities at A-State also provide a solid foundation for new programs. Perhaps the most notable is the equine center, which would provide an exceptional opportunity for hands-on experience for veterinary medical students.
- A-State has a strong core of programs and faculty in biological and health sciences, including biology, biotechnology, fisheries/wildlife/natural resources, nursing, osteopathic medicine (NYITCOM @ A-State), and veterinary technology (ASU-Beebe).
- The Arkansas Bioscience Institute (ABI) provides a strong, cutting-edge research foundation, with numerous projects either relying on animal health (laboratory animals) or targeting animal health (plant-protein nutraceuticals). Solid research programs also exist in animal-related, complementary programs including animal sciences, wildlife/natural resources, and biological sciences.

- The current undergraduate student population at A-State has a high proportion of first- generation college (50.3%), socio-economically disadvantaged (36% Pell Grant recipients), and under-represented minority (12.9% Black/African American) students – all of which are currently top recruiting priorities for existing AAVMC member institutions.
  - A-State's undergraduate programs should provide outstanding recruitment potential for a college/school of veterinary medicine. In addition to the highly desirable demographic attributes listed above, numerous undergraduate majors would align nicely with a program in veterinary medicine, including animal science, biology/zoology, biotechnology, fisheries and wildlife, nursing, and veterinary technology (at ASU-Beebe).
  - A-State is already culturally and academically adept at meeting the needs of student populations that might have been historically marginalized. The mantra that "every Red Wolf matters" speaks for itself.
- Leadership at A-State is strongly interested in, and committed to, a college/school of veterinary medicine – from the President's office through the Chancellor and Vice Chancellors to the Deans and Department Chairs.
- A-State is active in several key, within-state collaborations:
  - Several research collaborations exist with the University of Arkansas-Fayetteville, including programs in animal science and the ABI.
  - Critical collaborations exist with the Arkansas Department of Agriculture and their animal diagnostic laboratory in Little Rock.
- Establishing a college/school of veterinary medicine at A-State would provide a substantial boost to the local/regional economy.
- A-State has created a considerable amount of growth momentum as evidenced by
  - A recent trend of increasing student numbers, and
  - The commitment to a new Arts and Innovation building.
- Creating a college/school of veterinary medicine would clearly provide a notable point of distinction and pride for A-State.

References

1. Lloyd JW. Pet healthcare in the US: Are there enough veterinarians? Mars Veterinary Health, Vancouver, WA, April 2021, 7 pp. Available at: https://www.marsveterinary.com/tackling-the-veterinary-professional-shortage/ Accessed 4/20/22.

2. Lloyd JW. Pet healthcare in the US: Are there enough veterinary nurses/technicians? Is there adequate training capacity? Mars Veterinary Health, Vancouver, WA, August 2021, 7 pp. Available at: https://www.marsveterinary.com/tackling-the-veterinary-professional-shortage/ Accessed 4/20/22.

3. Lloyd JW. Pet healthcare in the US: Are there enough veterinary specialists? Is there adequate training capacity? Mars Veterinary Health, Vancouver, WA, February 2022, 7 pp. Available at: https://www.marsveterinary.com/tackling-the-veterinary-professional-shortage/ Accessed 4/20/22.

4. Zhang X, House LA, Salois MJ. An extended examination of US consumer pet-related and veterinary service expenditures, 2006-2018. Working Paper, University of Florida, Department of Food and Resource Economics, 2021.

5. American Association of Veterinary Medical Colleges. Annual Data Report, 2020-2021. Available at: https://www.aavmc.org/about-aavmc/public-data/ Accessed 4/20/22.

6. Dabdub DL, Brown D. Admissions update. Presented at: American Association of Veterinary Medical Colleges Annual Conference, Washington, DC, March 4, 2022.

Appendix B

Curriculum

**Year 1 Fall**
Prefix	Number	Class Title	Course Description	Credit Hours
DRVM	711V	*Academic Resilience Year 1**	This course will facilitate transition into veterinary medical school. Students will learn organizational strategies to facilitate a study plan for their degree.	0.5
DRVM	7115	*Anatomy I*	A systemic study of macroscopic body structure utilizing the dog and cat as the primary models for the study of general mammalian form; however, the anatomical information learned may be applied to essentially all domestic mammals and exotic species.	5
DRVM	712V	*Physiology I*	This course is a detailed study of cellular, tissue, organ function and their control and integration in animals. Emphasis will be placed on cardiovascular, endocrine, nervous, and muscular physiology.	5.5
DRVM	7121	*Veterinary Histology*	This course introduces histology of animals in veterinary medicine. It includes a diversity of animal tissues, abnormalities and diagnosis based on tissues type.	1
DRVM	7161	*Anatomy & Physiology Applied*	In this course, anatomy and applied physiology topics will be covered including and not limited to muscles, bone, nerves, effects of exercise/movement and transportation effects.	1
DRVM	7131	*Veterinary Foundations I**	This course introduces veterinary foundations of individuals and professionals in veterinary medicine. It includes history of veterinary medicine, cultural inheritance, human animal bond, animal welfare, animals in human psychosocial health, professional ethics and jurisprudence, work life balance, and professional organizations.	1
DRVM	7141	*Clinical Skills I*	Students will be taught safe handling and restraint techniques and will be introduced to the general physical examination of various domestic animal species, including small animals (dogs & cats), companion animals (horses) and production animals (cows & small ruminants).	1
DRVM	7132	*Professional Life Skills I**	Students will be introduced to basic communication and its importance in veterinary medicine and exposed to the following: diversity awareness in the profession, basic financial literacy, concepts of giving and receiving feedback professionally, and interpersonal skills development.	2

DRVM	7151	*Medical Science*	This course will provide a foundation of general medical knowledge required of a veterinarian. Subjects will include: medical terminology, medical chemistry, medical math, and medical physics.	1
Year 1 Spring				
DRVM	715V	*Research Methods in Veterinary Medicine**	This course will introduce students to biomedical research. Students will gain understanding of literature search, critical evaluation of scientific publications, hypothesis development, experimental design, data analysis, use of animals in research, IACUC, IRB, communication of research findings and grant writing.	0.5
DRVM	716V	*Veterinary Immunology*	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.	2.5
DRVM	717V	*Veterinary Virology*	This course introduces students to important viral diseases of animals and help them 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.	1.5
DRVM	714V	*Bacteriology & Mycology*	This course will introduce students to important bacterial and fungal diseases of animals and help them develop a conceptual framework that can be adapted to incorporate novel approaches that they will encounter during their veterinary careers.	2.5
DRVM	7171	*Clinical Skills II*	Students will learn ligatures and suturing techniques, phlebotomy, intramuscular injection and subcutaneous injection techniques. Students will perform physical examinations of canine, equine, bovine and ovine species and be introduced to the Subjective, Objective, Assessment and Plan for medial record keeping.	1
DRVM	7123	*Parasitology*	This course teaches parasitology, including etiology, pathogenesis, diagnosis, treatment and control of selected parasitic diseases in animals. Students will learn life cycle biology, transmission strategies, and natural hosts of major parasites.	3
DRVM	7214	*Anatomy II*	A systemic study of microscopic body structure utilizing the dog and cat as the primary models for the study of general mammalian form. Other domestic and farm animals will be utilized as well as exotic species.	4

| DRVM | 7181 | *Basic Veterinary Pharmacology* | This course covers the basic concepts of pharmacokinetics (drug absorption, distribution, metabolism and excretion) and pharmacodynamics (the action or effects of drugs on living organisms) that underlie the correct use of drugs in veterinary therapeutics. | 1 |

Year 2 Fall

Prefix	Number	Class Title	Course Description	Credit Hours
DRVM	7213	*Veterinary Pathology I*	The first half of this course will introduce the student to general pathology of all organ systems. The second half of this course covers systemic pathology of domestic animals.	3
DRVM	7232	*Professional Life Skills II**	Students will be introduced to additional skills related to client communication, conflict management, Level 2 Financial Literacy, Case Referrals, Professional Memberships.	2
DRVM	7223	*Clinical Pathology*	The first half of this course will introduce the student to general pathology of all organ systems. The second half of this course covers systemic pathology of domestic animals.	3
DRVM	7233	*Veterinary Foundations II*	Student will learn distribution, diagnosis, treatment, and control of zoonotic/transboundary diseases from courses regarding infectious agents, immune system, pathophysiology, clinical pathology, and parasitology. Student will examine disease and interrelatedness between individual and population, human health, animal health, and the environment.	3
DRVM	724V	*Clinical Skills III*	Gain expertise in handling and interpretation of general physical examination findings in large and small animals. Progress toward mastery of psychomotor skills for surgery including catheter placement, closure of abdominal incisions, gloving techniques and clamping/ligating. Introduction of basic diagnostic techniques.	1.5
DRVM	7253	*Diagnostic Imaging*	This course covers methods of image generation, radiation safety measures and principles of image interpretation. Radiography and ultrasonography are emphasized, but computed tomography, magnetic resonance imaging, and nuclear imaging are also discussed.	3
DRVM	7251	*Integrated Diagnostics*	This course integrates basic science with clinical skills; use of diagnostic imaging and clinical pathology in a clinical case. Students will develop their skills in critical thinking, communication, resource identification, evaluation, and clinical decision-making through small group management of cases.	1

			Year 2 Spring	
DRVM	7242	*Surgery I*	This course will cover principles of surgery, including basic surgical instruments and suture, wound healing, and bandaging.	2
DRVM	726V	*Surgery II*	Course will cover clinical conditions in animals with an emphasis on soft tissue surgical treatment and prognosis. It will apply anatomical knowledge and go beyond developmental aspects of small animal conditions to address surgical interventions.	1.5
DRVM	725V	*Small animal Orthopedic Surgery III*	This course will cover orthopedic and other clinical conditions seen in small animals on surgical treatment and prognosis. It will build upon the principles of surgery and surgical diseases and expand anatomical knowledge acquired for small animal orthopedics.	1.5
DRVM	7243	*General Pathology II*	Advanced pathophysiologic mechanisms responsible or abnormal findings in hematologic, biochemical, urinalysis and cytologic tests in health and disease of animals. Students will learn a selection of appropriate diagnostic tests for various diseases and how to interpret the results.	3
DRVM	727V	*Clinical Skills IV*	Students will continue to develop expertise in handling and interpretation of general physical examination findings in large animals. Students will demonstrate continued progress toward mastery of psychomotor skills for surgery including aseptic technique, anesthetic monitoring, and using a spay model.	1.5
DRVM	7252	*Anesthesia & Analgesia I*	The first half of this course will introduce the student to Anesthesia and Analgesia history, and influence on tissues within the body.	2
DRVM	7162	*Animal Husbandry & Welfare*	To understand husbandry and welfare of animals in veterinary medicine. Animals will range from domestic to exotic species.	2
DRVM	721V	*Toxicology*	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 toxicological information.	1.5
DRVM	7222	*Veterinary Nutrition*	This course is a comprehensive overview of domestic and food animal nutrition. Topics to be covered will include but not limited to digestion, metabolism of nutrients, feedstuffs, ration formulation, and the interaction of nutrition.	2

Year 3 Fall

Prefix	Number	Class Title	Course Description	Credit Hours
DRVM	7382	*Veterinary Pharmacology I*	This course covers the basic concepts of pharmacokinetics (drug absorption, distribution, metabolism and excretion) and pharmacodynamics (the action or effects of drugs on living organisms) that underlie the correct use of drugs in veterinary therapeutics.	2
DRVM	7322	*Theriogenology*	Integration of reproductive physiology, endocrinology, pathology, and pharmacology as they apply to 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.	2
DRVM	7314	*Small Animal Medicine I*	The primary goal of this course is to provide students with a broad and comprehensive knowledge of common canine and feline medical diseases and disorders organized by system.	4
DRVM	7353	*Equine Medicine & Surgery I*	Clinical conditions seen in the horse, with emphasis on clinical signs, diagnosis, medical and surgical treatment, and prognosis.	3
DRVM	7342	*Clinical Skills V*	Continued development of expertise in handling and interpretation of general and specific physical examination findings in large and small animals. Continuation of anesthesia and surgical skills training with introduction of anesthesia and surgery in the live canine or feline patient.	2
DRVM	7333	*Food Animal Production & Health Maintenance I*	This course is designed to educate the veterinary student on the diagnosis, treatment, prognosis and prevention of non-surgical and surgical disease of food and fiber animals (bovine, ovine, caprine, porcine, camelid) and includes production animal medicine and emerging diseases.	3
DRVM	7332	Professional Life Skills III*	Students will be introduced to more complexities related to client communication, conflict management, financial literacy, veterinary team dynamics, Euthanasia conversations, and Medical Ethics. Students will demonstrate development in communication, leadership, and professional skills related to the increasing professional complexities.	2

		Year 3 Spring		
DRVM	7351	Avian & Exotic Animal Medicine	This course is to introduce small, "exotic" mammalian, avian, and reptilian species which represent 6000-8000 species. The student will gain a basic understanding of the unique challenges and requirements of these increasingly popular, companion animals.	1
DRVM	7343	*Food Animal Production & Health Maintenance II*	This course will continue to educate the veterinary student on the diagnosis, treatment, prognosis and prevention of non-surgical and surgical disease of food and fiber animals (bovine, ovine, caprine, porcine, camelid) and includes production animal medicine and emerging diseases.	3
DRVM	7372	Clinical Skills VI	Students will be introduced to more advanced diagnostic and therapeutic procedures for small and large animals including ophthalmology procedures, ultrasonography, radiography, bandaging, semen evaluation, and epidurals using a combination of live animals, models and cadavers.	3.5
DRVM	7363	*Equine Medicine & Surgery II*	Clinical conditions seen in the horse, with emphasis on clinical signs, diagnosis, medical and surgical treatment, and prognosis.	3
DRVM	735V	Introduction to Clinical Year	Students will be introduced to the expectations of clinical experiences. Topics may include but not limited to small and large private practice handlings, and specialized clinics, i.e., state diagnostic laboratory.	0.5
DRVM	7324	*Small Animal Medicine II*	This course will provide students with a broad and comprehensive knowledge of common canine and feline medical diseases and disorders, preferred treatments and long-term care.	4
DRVM	7372	Clinical Skills VI	Students will be introduced to more advanced diagnostic and therapeutic procedures for small and large animals including ophthalmology procedures, ultrasonography, radiography, bandaging, semen evaluation, and epidurals using a combination of live animals, models and cadavers.	3.5

DRVM	7391	Practice Management	Students will be exposed to key concepts in veterinary practice management and ownership. Students will gain insights to operations in a variety of clinical settings. Students will acquire knowledge of business operations, team management and client acquisition and retention.	1
DRVM	7392	*Veterinary Pharmacology II*	This course covers the basic concepts of drug treatment and potential adverse effects common with small and large animals. Drug interactions will be discussed and commonly prescribed drugs for special conditions.	2
DRVM	7381	Radiology Interpretation	This course covers radiographic image interpretation using the foundation of Roentgen signs. Students have 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.	1

			Year 4		
Prefix	Number	Class Title	Course Description		Credit Hours
DRVM	7418	*CR-Small Animal General Practice*	Course consists of supervised clinical instruction in a selected, pre-approved, high-quality, small animal general practice (canine, feline, pocket pets). Students will experience a wide variety of medical and surgical cases.		8
DRVM	7424	*CR-Specialty Practice*	This course consists of supervised clinical instruction in a selected, high quality, specialty practice (canine, feline, lab animal, exotic, zoological, equine and/or large animal). Instruction will take place in practices with board certified internists, radiologists, surgeons, anesthesiologists, or other specialists.		4
DRVM	7434	*CR-Small Animal Shelter Practice*	Course consists of supervised clinical instruction in primary small animal care (canine, feline, pocket pets). Students will experience a wide variety of medical cases.		4
DRVM	7412	*CR-Diagnostic Veterinary Medicine*	This course is a 4-week rotation when students will receive senior level training in diagnostic pathology and 10 ancillary diagnostic services. The ancillary diagnostic services are: bacteriology, virology, molecular biology, serology, toxicology, clinical receiving, histology, parasitology, clinical pathology, and epidemiology.		2
DRVM	7442	*CR-Large Animal*	Students will be introduced to diagnostic and therapeutic procedures for large food animals and to procedures, diagnostic imaging, lameness examination, reproductive technology, bandaging and wound care, anesthesia, and general surgical procedures using a combination of live animals, models, and cadavers.		2
DRVM	7422	*Clinical Diagnostic Imaging*	The course objective is to help students assimilate the fundamental principles of radiographic interpretation and to offer practice in applying this knowledge to case material.		2

DRVM	745V	*CRE-Elective Externship*	Course is a variable (2-4) week supervised clinical instruction in high quality learning experiences at institutions and practices in North America and around the world, to include specialty practices (medicine, surgery, cardiology, dermatology, neurology, oncology, ophthalmology), species-specific practices, other accredited Colleges of Veterinary Medicine, zoos, and A-State approved public and private biomedical institutions. *Course is repeatable for credit*.	22
DRVM	7433	*NAVLE Administration*	Course DRVM 7435 is a required course. Students will prepare and sit for the North American Veterinary Licensing Exam (NAVLE®). Students will conduct independent studies and review to prepare for the NAVLE® by completing 80% of an approved prep course.	3
DRVM	7451	*Assessment of Clinical Year*	Students will share clinical experiences with other students and A-State faculty. Topics may include but not limited to financial aid separation, rotation experience, and debt repayment methods.	1

Appendix C
Course Evaluation

Arkansas State University	
Course Evaluation Questions	
Column	Question
Question 1	Semester during which you took this class?
Question 2	Year during which you took this course?
Question 3	Who was the instructor/professor for the course?
Question 4	Name the course you just completed.
Question 5	The course objectives were clearly communicated.
Question 6	The design/organization of this course effectively facilitated my learning.
Question 7	The learning materials/resources provided were appropriate for understanding course content.
Question 8	The technology used in the delivery of this course enhanced my learning.
Question 9	The instructor demonstrated knowledge of the subject matter.
Question 10	The instructor's explanations/examples were appropriate for learning in this course.
Question 11	Student-to-student interactions effectively contributed to learning course content.
Question 12	The assignments were appropriate for learning course content.
Question 13	The assessment/grading criteria were clearly communicated.
Question 14	Feedback on work that I submitted assisted me in learning course content.
Question 15	I would highly recommend this professor to other students.
Question 16	Add any comments here.

Bulletin Changes

For new programs, please insert copy of all sections where it will be referenced.

Not applicable.