

## New Proposal

Date Submitted: 02/18/19 4:39 pm

Viewing: : **MVS Master of Veterinary Science**

Last edit: 09/12/19 4:03 pm

Changes proposed by: Deb Forgacs

### In Workflow

1. **U Program Review**
2. **Provost**
3. **Senate EPC**
4. Senate
5. U Senate Conf
6. Board of Trustees
7. IBHE
8. DMI

### Approval Path

1. 02/21/19 10:13 am  
Kathy Martensen (kmartens):  
Approved for U Program Review
2. 08/30/19 1:55 pm  
Kathy Martensen (kmartens):  
Rollback to U Program Review for Senate EPC
3. 08/30/19 4:27 pm  
Deb Forgacs (dforgacs):  
Approved for U Program Review
4. 09/03/19 9:39 am  
Kathy Martensen (kmartens):  
Approved for Provost

### Proposal Type

Proposal Type:  
Degree (ex. BS, MS)

Proposal Title  
Establish a Master of Veterinary Science (MVS) degree (previously EP.19.35)

Is this program  
an online version  
of an existing  
program?

No

Official Program  
Name

MVS Master of Veterinary Science

Banner/Codebook  
Name

Program Code:

Effective Catalog  
Term

Fall 2020

Sponsor College

Veterinary Medicine

Sponsor  
Department

Vet Clinical Medicine

Sponsor Name

James F. Lowe, DVM, MS DABVP,  
Associate Professor, Veterinary Clinical  
Medicine

Sponsor Email

jlowe@illinois.edu

College Contact

Holly Fuson, Assistant Director, College of  
Veterinary Medicine Administration

College Contact  
Email

hjayne@illinois.edu

Is this program interdisciplinary?

No

Academic Level

Graduate

## Program Description and Justification

Provide a **brief** description and justification of the program, including highlights of the program objectives, and the careers, occupations, or further educational opportunities for which the program will prepare graduates, when appropriate.

See Attached.

Is This a Teacher Certification Program?

No

Will specialized accreditation be sought for this program?

No

## Institutional Context

### University of Illinois at Urbana-Champaign

Describe the historical and university context of the program's development. Include a short summary of any existing program(s) upon which this program will be built.

See Attached.

### University of Illinois

Briefly describe how this program will support the University's mission, focus and/or current priorities. Demonstrate the program's consistency with and centrality to that mission.

See Attached.

### State of Illinois

Indicate which of the following goals of the Illinois Board of Higher Education's Strategic Initiative are supported by this program: (choose all that apply)

Educational Attainment - increase educational attainment to match the best-performing states.

Describe how the proposed program supports these goals.

See Attached.

## Enrollment

### Delivery Method

What is the program's primary delivery method?

Face-to-Face

## Budget

Will the program or revision require staffing (faculty, advisors, etc.) beyond what is currently available?

No

Additional Budget Information

Attach File(s)

## Resource Implications

### Facilities

Will the program require new or additional facilities or significant improvements to already existing facilities?

No

### Technology

Will the program need additional technology beyond what is currently available for the unit?

No

### Non-Technical Resources

Will the program require additional supplies, services or equipment (non-technical)?

No

## Resources

### Library Resources

Describe your proposal's impact on the University Library's resources, collections, and services. If necessary please consult with the appropriate disciplinary specialist within the University Library.

See Attached.

### Instructional Resources

Will there be any reduction in other course offerings, programs or concentrations by your department as a result of this new program/proposed change?

No

Does this new program/proposed change result in the replacement of another program?

No

Does the program include any required or recommended subjects that are offered by other departments?

No

## Financial Resources

How does the unit intend to financially support this proposal?

See Attached.

Will the unit need to seek campus or other external resources?

No

Attach letters of support

[ep1935.pdf](#)

## Program Regulation

Describe how the program is aligned with or meets licensure, certification, and/or entitlement requirements, if applicable.

See Attached.

Is the career/profession for graduates of this program regulated by the State of Illinois?

No

## DMI Documentation

Attach Final Approval Notices

Attached Document

Justification for this request

Program Reviewer Comments

**Kathy Martensen (kmartens) (05/14/19 10:56 am):** This is a companion to the Livestock Systems Health, MVS proposal. Submitted to 2018-19 EPC; carried over to AY 2019-20. Sponsors may use this version or revise for 2019-20 EPC consideration in FA 19.

**Kathy Martensen (kmartens) (08/30/19 1:55 pm):** Rollback: To move to Provost queue to sync with revisions.

Key: 526

UNIVERSITY OF ILLINOIS  
AT URBANA - CHAMPAIGN

EP.19.35

Office of the Provost and Vice Chancellor  
for Academic Affairs

Swanlund Administration Building  
601 East John Street  
Champaign, IL 61820



December 20, 2018

Gay Miller, Chair  
Senate Committee on Educational Policy  
Office of the Senate  
228 English Building, MC-461

Dear Professor Miller:

Enclosed is a proposal from the College of Veterinary Medicine to establish the Master of Veterinary Science in Livestock Systems Health as a self-supporting program.

Sincerely,

A handwritten signature in black ink, appearing to read 'Kathryn A. Martensen', written over a horizontal line.

Kathryn A. Martensen  
Assistant Provost

Enclosures

c: J. Lowe  
H. Fuson  
A. McKinney  
J. Hart  
A. Edwards  
E. Stuby

**Graduate College**

110 Coble Hall  
801 South Wright Street  
Champaign, IL 61820-6210



**Executive Committee**

**2018-2019 Members**

Wojtek Chodzko-Zajko  
Dean & Chair  
Graduate College

*Members*

Conrad Bakker  
Art & Design

Zachary Berent  
Graduate Student, Mechanical  
Science & Engineering

Xiaoling Chen  
Accountancy

Lee DeVille  
Mathematics

Lilya Kaganovsky  
Comparative & World  
Literature

Becky Fuller  
Animal Biology

Justine Murison  
English

Denice Hood  
Education

Tania Ionin  
Linguistics

Brian Bailey  
Computer Science

Lori Raetzman  
Molecular & Integrative  
Physiology

Katie Ranard  
Graduate Student, Nutritional  
Sciences

Sandra Rodriguez-Zas  
Animal Sciences

Sela Sar  
Advertising

Mark Steinberg  
History

Terri Weissman  
Art & Design

December 20, 2018

Kathy Martensen  
Office of the Provost

Dear Kathy,

Included is a proposal from the College of Veterinary Medicine to **“Establish a Master of Veterinary Science (MVS) degree with a major in Livestock Systems Health”**.

The proposal was received on October 12, 2018 and reviewed at the Graduate College Executive Committee meetings on October 19, November 16 and on December 14, 2018. The committee’s requests for clarification and revisions centered around providing additional information about the required courses for the degree, clarification on the training that students would receive with this program and providing clear distinction about how this degree would be different from the new Master of Animal Science degree.

The revised version of the proposal received on December 13<sup>th</sup> and reviewed at the December 14<sup>th</sup> meeting has provided that clarification and we find that this proposal meets the standards of Graduate Education at Illinois. We now forward for your review.

Sincerely,

John C. Hart  
Executive Associate Dean  
Graduate College

c: J. Lowe  
H. Fuson



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## Proposal to the Senate Educational Policy Committee

**PROPOSAL TITLE:** Establish a Master of Veterinary Science (MVS) degree with a major in Livestock Systems Health

**SPONSOR:**

James F. Lowe, DVM, MS DABVP (Food Animal) Associate Professor, Veterinary Clinical Medicine 2001 S. Lincoln Ave., Urbana, IL 61802  
217-300-6398 | [vetmed.illinois.edu](mailto:vetmed.illinois.edu)  
[jlowe@illinois.edu](mailto:jlowe@illinois.edu)

**COLLEGE CONTACT:**

James F. Lowe, DVM, MS DABVP (Food Animal) Associate Professor, Veterinary Clinical Medicine 2001 S. Lincoln Ave., Urbana, IL 61802  
217-300-6398 | [vetmed.illinois.edu](mailto:vetmed.illinois.edu)  
[jlowe@illinois.edu](mailto:jlowe@illinois.edu)

**BRIEF DESCRIPTION:**

The primary goal of the Master of Veterinary Science (MVS) degree program with a major in Livestock Systems Health is to develop critical thinking skills, instill the desire to be life-long learners and increase the depth and breadth of professional knowledge for veterinarians currently in the workforce. The program aims to develop the skills needed to thrive in multiple career paths in Veterinary Medicine including clinical practice, academia, industry, government, and clinical research.

College of Veterinary Medicine at the University of Illinois at Urbana-Champaign will sponsor the Master of Veterinary Science degree program. Students, who work in animal-based food production industries and require systems-based veterinary and scientific skills, are the ideal candidates for this program. Students will be able to demonstrate the knowledge and skills necessary to enhance their careers and meet the demand for systems-based veterinary scientists in the workforce. The primary markets will be both domestic and international veterinarians and veterinary students working in the global animal based food production industries. The proposed program is a 32-credit hour degree. Its design will provide veterinarians an in depth understanding of systems based infectious disease control and management practices.

**JUSTIFICATION:**

Faculty at the College of Veterinary Medicine, through their research and collaboration with industry leaders and faculty from different disciplines have examined the veterinary workforce knowledge gap within their specified fields. The investigation discovered the need for intensive knowledge transfer for scientific, systems based veterinary skills that are applicable to the intensive animal-based food



production industries. The Master of Veterinary Science with a major in Livestock Systems Health will fill this gap for specific veterinary professionals and widen the impact and reach of the College of Veterinary Medicine by enrolling a new student population not targeted with current degree offerings.

The electives available within this program will consist of both courses currently offered within the Pathobiology, Comparative Biosciences, and Veterinary Clinical Medicine departments and a series of new courses in the departments of Pathobiology and Veterinary Clinical Medicine. Current courses focus on pathogen biology, epidemiology, bio-statistics and the application of clinical principles to solving animal health challenges. The series of new courses will focus on the management of infectious disease including therapeutic approaches, strategies control, clinical reasoning, system's based problem solving and epidemiologic assessment of disease management. We designed the available courses to provide a well-rounded approach to veterinary issues, from both a food safety and animal health perspective. The course of study will be determined on a student-by-student basis with the student's advisory committee.

Currently, veterinarians seeking a Masters' degree from the University of Illinois at Urbana-Champaign College of Veterinary Medicine must choose either a Master of Veterinary Clinical Medicine, Master of Pathobiology or Master of Comparative Biosciences degree. The Master of Veterinary Clinical Medicine degree is designed to prepare students for careers involving research or teaching in a specialty area and leverages a three-year residency program in a recognized veterinary specialty as a core part of the training. The Master of Pathobiology degree provides intensive training in either epidemiology, infectious disease, immunology, virology, bacteriology, anatomic pathology, or clinical pathology. The Master of Biosciences degree has specialization of physiology, pharmacology, and toxicology. The three available degrees provide intensive, specific training in a narrowly focused area of veterinary science. Veterinarians employed in the livestock-based food supply chain need multi-disciplinary training in applied veterinary science that is outside of the scope of currently available graduate programs at Illinois or globally. This is evidenced by the low rate of enrollment by food-supply veterinarians in current graduate offerings at the University.

This program will address unmet needs of veterinarians across the globe. Existing programs within Animal Science and Veterinary Medicine do not address the core clinical application of scientific disease control principles within production systems. The focus of this program is on clinical application of scientific principles and not a research-based program to generate new knowledge. Existing graduate programs within Veterinary Clinical Medicine, and Veterinary Pathobiology are focused on research-based programs to develop core skills in knowledge creation, and not the application of knowledge to clinical programs.

We believe that this program has a different audience than existing programs on campus, as we are targeting practicing veterinarians across the globe. The admission requirements reflect that graduate veterinarians will not be subject to GRE exams as a typical graduate student would be. By the same token, we fully recognize that on a global basis, the western view of veterinary education is not applicable, meaning that many veterinarians practicing across the globe have different training and educational requirements than what we do to practice as a licensed professional in North America. Therefore, we have attempted to make the admission requirements accommodate these differing educational backgrounds, and we'll require individuals practicing medicine in regions with different educational standards to adhere to traditional graduate admission requirements, including GRE scores, to ensure that we are meeting academic rigor as required by the University, our College, and desired by the program.

Veterinary education in developing markets is much less rigorous than in North America and Western Europe. However, these developing markets are critical to meeting the world's food supply demand by 2050 and therefore have an immediate need to improve their animal health infrastructure. Currently, they are using North American and Western European veterinarians for technology transfer through consulting relationships. While this method may address short-term needs, it is not building the technical capacity needed to meet their projected food supply needs. There are many schools of veterinary medicine in these markets, but they lack the technical skills and resources to adequately train livestock-based food supply veterinarians.

Changes in the macro environment for animal-based food production have resulted in a significant and growing shortage of individuals in the U.S. and around the world who have the necessary systems-based veterinary and scientific skills to work in the intensive animal-based food production industry. In parallel with the intensification of the livestock industries, there has been expansion of the companion animal population in established economies, such that 70% of veterinarians now work in companion animal health care. The shift in demand for veterinary services has resulted in a shift in university curricula toward companion animal medicine. The proposed program directly addresses the need for highly specialized post-graduate training opportunities for those veterinarians employed in intensive livestock production systems in North American and European markets.

#### **BUDGETARY AND STAFF IMPLICATIONS:**

1.) Resources

a. How does the unit intend to financially support this proposal?

The College of Veterinary Medicine was awarded \$1.0M funding support in 2018 through the Office of the Provost's Investment for Growth program (IFG) for the new degree program.

Additionally, the College of Veterinary Medicine (CVM) will continue to contribute \$0.5M toward development costs.

b. How will the unit create capacity or surplus to appropriately resource this program? If applicable, what functions or programs will the unit no longer support to create capacity?

Faculty member appointments have already been adjusted to dedicate adequate time to the Master of Veterinary Science program. The Center for Innovative Teaching and Learning (CITL), a University resource, will be utilized to leverage existing knowledge in creative course design. Staff members funded by the Provost's Investment for Growth initiative and College of Veterinary Medicine funding will be hired for operational support of the program until revenue is generated.

c. Will the unit need to seek campus or other external resources? If so, please provide a summary of the sources and an indication of the approved support.

The College of Veterinary Medicine and the Center for Innovation in Teaching and Learning will partner for the initial development of courses. A Memorandum of Understanding has been signed by both parties in agreement of the partnership.

d. Please provide a letter of acknowledgment from the college that outlines the financial arrangements for the proposed program.

Please see attached

2) Resource Implications

- a. Please address the impact on faculty resources including the changes in numbers of faculty, class size, teaching loads, student-faculty ratios, etc.

The Master of Veterinary Science degree program will not impact faculty resources. The number of faculty members, class size, teaching load, and student-faculty ratios will remain the same. Using the provost awarded investment for growth funding to start the degree program, staff members required to make the program successful will be hired. The current Doctorate of Veterinary Medicine program and master degree programs in Pathobiology, Comparative Biosciences and Veterinary Clinical Medicine will not be disrupted.

- b. Please address the impact on course enrollment in other units and provide an explanation of discussions with representatives of those units. (*A letter of acknowledgement from units impacted should be included.*)

The Master of Veterinary Science will target a new niche of students who will be enrolled in courses not currently offered with the College of Veterinary Medicine. Course enrollment for other units will not be affected.

- c. Please address the impact on the University Library (*A letter of estimated impact from the University Librarian must be included for all new program proposals. If the impact is above and beyond normal library business practices, describe provisions for how this will be resourced.*)

The impact to the University Library will be limited to normal library business practices. Please see attached.

- d. Please address the impact on technology and space (e.g. computer use, laboratory use, equipment, etc.)  
All equipment required for the program will be provided the Investment for Growth funds awarded through the Provost office.

For new degree programs only:

- 3) Briefly describe how this program will support the University's mission, focus, and/or current priorities. Include specific objectives and measurable outcomes that demonstrate the program's consistency with and centrality to that mission.

Making a significant and visible societal impact is a core goal in the current University of Illinois at Urbana-Champaign strategic plan. The Master of Veterinary Science degree contributes to this goal by providing students with the knowledge and ability to address critical needs in domestic and international markets for animal health, competency development, and technology transfer. It does so by providing students with highly specialized post-graduate training opportunities for those employed in intensive livestock production systems.

- 4) Please provide an analysis of the market demand for this degree program. What market indicators are driving this proposal? What type of employment outlook should these graduates expect? What

resources will be provided to assist students with job placement?

A market test was launched in 2016 through a MOOC where 11,000 learners from six continents and 142 countries registered. Analytics of our course demonstrate that large numbers of highly educated people from emerging markets are interested in and utilized online training to build competencies that they need. Additionally, we have identified this market need based on the high number of requests for clinical training by U.S. experts in foreign markets and through formal market research. Faculty from the college have extensive experience in delivering training programs in these markets and understand the scope and complexity of issues facing these food production systems.

- 5) If this is a proposed graduate program, please discuss the programs intended use of waivers. If the program is dependent on waivers, how will the unit compensate for lost tuition revenue?

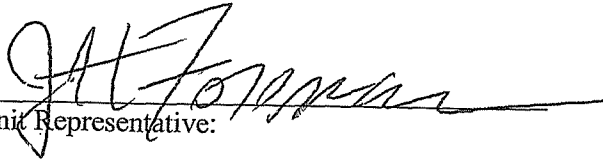
This program will be self-supporting. Please see attached.

**DESIRED EFFECTIVE DATE:**

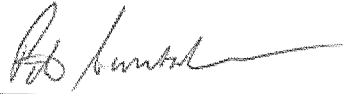
Fall semester of 2019

**CLEARANCES:** (Clearances should include signatures and dates of approval. These signatures must appear on a separate sheet. If multiple departments or colleges are sponsoring the proposal, please add the appropriate signature lines below.)

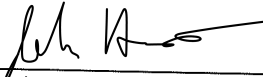
Signatures:

  
Unit Representative:

10-11-18  
Date:

  
College Representative:

\_\_\_\_\_  
Date:

  
Graduate College Representative:

12/20/18  
Date:

\_\_\_\_\_  
Council on Teacher Education Representative:

\_\_\_\_\_  
Date:

## Appendix A:

### STATEMENT FOR PROGRAMS OF STUDY CATALOG

#### COLLEGE CONTACT:

James F. Lowe, DVM, MS DABVP (Food Animal)  
Associate Professor, Veterinary Clinical Medicine  
2001 S. Lincoln Ave., Urbana, IL 61802  
217-300-6398 | [vetmed.illinois.edu](mailto:vetmed.illinois.edu)  
[jlowe@illinois.edu](mailto:jlowe@illinois.edu)

Major: Livestock Systems Health

Degree offered: M of Veterinary Science

The primary goal of the MVS degree program is to develop critical thinking skills, instill the desire to be life-long learners, and increase the depth and breadth of veterinary professional knowledge for food-producing animal industries. It aims to develop the skills needed to thrive in multiple career paths including specialized clinical practice, academia, industry, government, and clinical research. The Master of Veterinary Science with a major in Livestock Systems Health is a 32-hour program that will take approximately two years to complete. Design of the program focused on students currently in the workforce.

Required Courses:	Required Hours
Electives	20
Biostatistics	4
V.M.S. Experiential learning (capstone)	8
Total Hours	32

Other Requirements:	
Final Comprehensive Exam	
Minimum Cumulative GPA	3.0
Minimum 500-level Hours Required Overall	12

Elective courses will include but are not limited to the following subject areas:

- Pathogen biology
- Immunology and Medical Microbiology
- Epidemiology and animal health economics
- Infectious disease control and management
- Systems management and systematic approaches to problem solving

#### Admission

Admission requirements to the MVS degree graduate program:

1. Doctor of Veterinary Medicine (DVM) degree or equivalent, or an appropriate undergraduate degree
2. Minimum grade point average of 3.0

Applicants for the MVS degree who do not have a DVM or equivalent degree must have a minimum grade point average of 3.0. Grade point averages will be calculated on the last 60 hours of undergraduate studies. Applicants with a graduate degree or with some graduate coursework will be evaluated on the basis of their graduate work as well as their undergraduate or professional record. Qualifications of students must be approved by the program's Graduate Admissions Committee.

Graduate Record Examination (GRE) results within the last five years are required for applicants that do not have a DVM or equivalent degree.

International applicants whose native language is not English must take the Test of English as a Foreign Language (TOEFL). A score of at least 600 on the paper-based test, or 250 on the computer-based test, is required. Those applicants who gain admission on the basis of their academic credentials, but score below 600 on the TOEFL, will be admitted on limited status and required to take the English Placement Test (EPT) upon their arrival. Students are exempt from the TOEFL requirement if they have completed at least two academic years of full-time study at an institution where the language of instruction is English during the five-year period prior to the proposed date of enrollment. Students also need to take the Test of Spoken English (TSE) oral exam and score at least 50.

### **Capstone Research**

The capstone research project must be approved by the advisor. Students complete their education in a capstone research project assessing their ability to perform a comprehensive project similar to what they will be expected to do in a professional setting. The program-wide experiential learning project is designed for students to address a real-world challenge that integrates across the courses in the program. This exclusive opportunity complements concepts learned in the courses and gives students a real-world experience. Students may complete their capstone project at the University Of Illinois College Of Veterinary Medicine or within an environment approved by their advisor. Registration for the final capstone research project is restricted to students who have completed all core coursework.



**PROGRAM TUITION WAIVER POLICY REQUEST FORM**

Definitions of Tuition Waiver Policy Designations:

**Traditional Programs.** Programs either designated as generating full or base-rate tuition waivers. Please note, new programs seeking Traditional classification with a full waiver do not need to complete this form.

**Reimbursable Programs.** Programs that have been approved to seek reimbursement from the student's employing unit. The academic program may seek reimbursement for the amount equal to the tuition waiver received by the student, which would have been a result from a waiver-generating appointment.

**Cost-recovery and self-supporting programs.** Students in approved cost-recovery and self-supporting programs are not eligible to receive tuition and fee waivers except statutory waivers. For example, these students may not hold waiver-generating appointments, receive stand-alone waivers or receive employee waivers. However students are eligible to receive tuition scholarships.

Information related to these tuition waiver classifications can be found here:  
<http://www.grad.illinois.edu/gradhandbook/2/chapter7/tuition-waivers#otherprovisions>.

Please contact the Graduate College if you have questions or seek clarifications, (217) 333-0035.

**COLLEGE OR SCHOOL:** College of Veterinary Medicine

**PROGRAM:** Master of Veterinary Science

**REQUESTED CLASSIFICATION:**  TRADITIONAL  REIMBURSABLE  SELF-SUPPORTING

**JUSTIFICATION:** On a separate sheet, please address the following.

- Describe the reasons for this request and explain: (a) the pros and cons of the classification requested, and (b) how the requested classification will benefit and not adversely affect the academic quality of the program.
- What type of financial assistance will be offered to students in this program?
- Has this program had a past practice of offering graduate assistantships in the past, if so please describe.
- What provisions will be made to communicate the classification to prospective and newly admitted students?

Unit Head Signature and Date 

College Dean Signature and Date 

**APPROVED**

 12/20/18



**JUSTIFICATION: On a separate sheet, please address the following.**

1. Describe the reasons for this request and explain: (a) the pros and cons of the classification requested, and (b) how the requested classification will benefit and not adversely affect the academic quality of the program.

The Master of Veterinary Science degree program will generate new revenue for the College of Veterinary Medicine enabling us to increase the quality of the educational experience in all graduate degree programs.

2. What type of financial assistance will be offered to students in the program?

All students admitted to the new Master of Veterinary Science degree program will need to pay tuition. Financial assistance through the Master of Veterinary Science degree program will not be offered to any students enrolled in the program.

3. Has this program had past practice of offering graduate assistantships? If so, please describe. No. This is a new program.

4. What provisions will be made to communicate the new classification to prospective and newly admitted students?

The program's self-supporting classification will be communicated to prospective students via the program's website as well as through all communications.



**COLLEGE OF VETERINARY MEDICINE**

3505 Veterinary Medicine Basic Sciences Building, MC-002  
2001 S. Lincoln Ave.  
Urbana, IL 61802-6178

October 12, 2018

Office of the Senate  
228 English Building  
608 South Wright Street  
Urbana, IL 61801

Dear Senate Executive Committee,

In 2018 the college was awarded \$1,000,000 through the Provost's Office Investment for Growth initiative to develop the proposed Master of Veterinary Science degree. The College of Veterinary Medicine committed additional funds in the amount of \$500,000 for the Investment for Growth initiative. Tuition revenue generated from the proposed master's degree program is committed to expand future course offerings and to offset ongoing development costs.

The purpose of this correspondence is to confirm that the proposed program is adequately funded to develop and sustain course offerings that will ultimately confer a master's degree in Veterinary Science to candidates who have completed degree requirements. As previously noted, the program has secured initial funding in the amount of \$1.5M. Further, the program is managed against a carefully constructed business plan that maps revenue and expenses across a seven year planning horizon. The plan forecasts that the program will generate revenues in excess of expenses by Fiscal Year 2021 and will be positioned to expand course offerings thereafter.

In summary, please be assured that the proposed program is sufficiently funded and is well positioned to offer a Master's degree in Veterinary Science well into the future.

Please don't hesitate to contact me if you have questions or require additional information in this regard.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Peter Constable', written over a light blue rectangular background.

Peter Constable  
Professor and Dean, College of Veterinary Medicine

UNIVERSITY OF ILLINOIS  
AT URBANA-CHAMPAIGN

University Library  
1408 West Gregory Drive  
Urbana, IL 61801



October 11, 2018

Prof. James F. Lowe  
Director, College of Veterinary Medicine i-Learning Center  
Associate Professor, Veterinary Clinical Medicine  
2001 S. Lincoln Ave.  
Urbana, IL 61802

Dear Prof. Lowe:

The University Library recently received a proposal from the College of Veterinary Medicine to establish a Master of Science in Veterinary Medicine (MSVM).

Based upon the documents received and reviewed by Erin Kerby in the Veterinary Medicine Library and Tom Teper in my office, it is our belief that there will be no significant impact on the University Library. We are already supporting degrees in this area and see no significant burden on the University Library as a result of the program outlined in the proposal. The current collection already supports this degree; any issues that we anticipate would be on the delivery side, as many of the textbooks in this field are often only available in print. Erin Kerby has already been discussing options for library instruction with those developing the program.

If additional services or materials are required as the programs further develop, we will be happy to discuss those needs as they emerge.

Sincerely,



John Wilkin

Juanita J. and Robert E. Simpson Dean of Libraries and University Librarian

e-cc: Holly Fuson, College of Veterinary Medicine  
Erin Kerby  
Thomas Teper



## **COLLEGE OF VETERINARY MEDICINE**

Department of Veterinary Clinical Medicine  
242 Small Animal Clinic, MC-004  
1008 W. Hazelwood Drive  
Urbana, IL 61802-4714

Graduate College Executive Committee

December 12, 2018

Dear Committee members:

While Animal Science, of which I am an alumnus, and Veterinary Medicine are closely related fields with broad areas of overlap they differ in their core approach to problem solving. The health professions, medicine, veterinary medicine, dentistry, all rely upon the foundation of the basic and applied sciences; they are the application of biology, chemistry and physics to health. But just as we all acknowledge that biologists are not medical doctors, animal scientists are not veterinarians. Medicine is the application, based on the patient's (owner's in the case of veterinary medicine) cultural and personal views of evidence created by the scientific process that incorporates the experience of the practitioner in the delivery of care. Science is about facts that we either accept or deny based on the probability of being correct. It is black and white, yes or no. Clinical practice is about choices that are right for the situation based on the human impact of those choices on lives and livelihood. Clinical practice is about the individual and not the number, it is all grey.

The Master of Veterinary Science with a major in Livestock Systems Health, while addressing subjects of hard science, is for individuals who are applying that knowledge to clinical practice. As with any educational program, its success is dependent on creating an experience that directly meets the knowledge and skills gaps of the proposed learners. The proposed degree is to address the gaps of veterinary clinicians working in food production systems who are currently not engaged with the university for any post professional graduation education. We are unaware of any practicing veterinarians working in food animal production that are enrolled in graduate programs at the UI that are not associated with the College of Veterinary Medicine (CVM). We believe this to be the same across North American universities. The UI CVM has been very successful in attracting practicing food animal veterinarians to intensive post professional education through its Executive Veterinary Program over the last 25 years with over 250 graduates of the program. This strongly suggests that there is a need for additional education and that existing programs have not met that need because of either improper content or delivery format. This program is specifically designed to address those specific needs.

We have engaged the College of Agriculture and Department of Animal Sciences both during the development and after funding of the Investment for Growth Proposal (IFG) where a new MS degree was a core deliverable

of the proposal. These discussions have focused on how we can collaborate, insure that there is no overlap in prospective student populations and minimize the duplication of effort. I have offered to meet with the entire department multiple times. In response to your encouragement to reach out to the Department of Animal Sciences we believe that we have been transparent and open throughout this process and have kept them engaged during key steps of development.

I met with the department head Dr. Steve Loerch on March 29, 2017 while we were developing the IFG proposal and specifically asked for a meeting with key members of his faculty that he and I thought could be collaborators on the project. In addition, I offered to meet with the entire department. Following funding of the IFG, Dean Constable and I met with Dean Kidwell on October 4, 2017 to address her concerns about potential overlap of students. A core outcome of the meeting was adapting the name from The Illinois Integrated Program for Sustainable Livestock Production which was proposed in the IFG to the Livestock Systems Health program to avoid any confusion with potential students about what the program was about. Subsequent to that meeting, I met on October 16, 2017 with the Animal Science interim department head, Dr. Douglas Parrett to review where we were at with developing the program and potential routes for collaboration. I again offered to meet with the key faculty we discussed and the whole department which we agreed might be a good idea. We agreed to reach out again when I was at a point in course development where AnSci faculty would be a good addition to courses as guest lectures and to share our learnings on about the development of material for blended and online courses as AnSci was interested in starting an online MS program. At no time during this process was a new, non-thesis MS program in Animal Science mentioned or suggested that it would be proposed.

I look forward to answering and additional questions or concerns that you have.

Sincerely,

A handwritten signature in black ink that reads "James F. Lowe DVM". The signature is written in a cursive, flowing style.

James F. Lowe, DVM, MS, ABVP (Food Animal)  
Associate Professor and Head Integrated Food Animal Management Systems  
p. +1.217.300.6398  
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**Inquiry:**

There are two perceived conflicts between the Animal Sciences master's degree and the proposed College of Veterinary Medicine masters of Veterinary Science degree:

(a) Unhealthy competition for student enrollment

(b) Unnecessary redundancy of course content between the two degree programs

Our responses to both of these concerns are outlined in the table below.

	College of Veterinary Medicine	College of ACES Animal Sciences
<b>Concern: unhealthy competition for student enrollment</b>		
<b>Response: We anticipate that, in view of the course prerequisites, programmatic educational objectives/competency outcomes, online delivery format, clinical focus of the course content, and particular expertise of the course designers/instructors, the CVM graduate program will attract a previously unserved population of learners from the livestock industry, and so will not compete with any existing course offerings at UIUC.</b>		
<b>Title</b>	Master of Veterinary Science	Master of Animal Sciences
<b>Major</b>	Livestock Systems Health	Animal Sciences
<b>Target audience</b>	Animal health professionals (e.g. veterinary scientists and clinicians) from all over the world	People with a bachelor's degree interested in an Animal Science graduate degree living in the rural area or willing to relocate
<b>Admission requirements</b>	Doctorate of Veterinary Medicine or equivalent	Undergraduate degree
<b>Topic of study</b>	Animal health, disease recognition, disease treatment. Management of infectious disease (therapeutic approaches, clinical reasoning, epidemiologic assessment of disease management)	Animal production and environment management (facilities, breeding management, nutrition)

<b>Fields of specialization</b>	Infectious disease management (diagnostic & clinical treatment), infectious disease management (diagnostic & clinical treatment) swine populations, infectious disease management (diagnostic & clinical treatment) poultry population, infectious disease management (diagnostic & clinical treatment) ruminant population	Animal breeding and genetics, animal behavior, biochemistry, bioinformatics, environmental physiology, immunobiology, meat sciences and muscle biology, microbiology, nutrition, systems of animal management and production, physiology and lactation, physiology and reproduction
<b>Platform</b>	Blended	Onsite
<b>Degree requirements</b>	Electives (20 credits), Biostatistics (4credits), Capstone (8credits)	Seminar (2 credits), Statistics (4 credits) , 500 level courses (6 credits), 400 or 500 level ANSC courses(6 credits), other electives (6 Credits)
<b>Career trajectories of graduates</b>	(a) Advanced, corporate veterinary practitioner, animal health scientist or clinical advisor to industry (b) Government or regulatory clinical scientist, technical advisor to pharmaceutical, clinical technology or food production company	(a) Basic or applied animal sciences in universities, government agencies, private industry, college or high school teaching, community outreach and public engagement (b) Professional Science Masters – breeding manager, production farm manager, sales/marketing rep, natural resource manager, international development analyst or advocate, sustainability coordinator, wildlife biologist, sustainable farming consultant
<b>Concern: Unnecessary redundancy of course content between the two degree programs</b>		
<b>Response: in view of the livestock sector overlap, there will clearly be some intersection of learning content at a lecture/tutorial level. However, since the programmatic goals and learning outcomes of the two degrees are very different, the context for teaching and learning the subject matter will be distinct for each syllabus.</b>		

<b>Content focus</b>	Impact and control of infectious disease in livestock production systems	Approaches to, and principles of, livestock production
<b>Instructors</b>	Clinical scientists and practicing clinicians (DVM)	Animal Scientists
<b>Programmatic learning objectives and competency outcomes</b>	Knowledge and skills to (a) evaluate and improve the health of animals in livestock systems and (b) apply economically effective interventions to treat and control infectious disease	In depth understanding of animal sciences (a) Acquire skills to transform rapidly changing scientific knowledge into meaningful, sustainable products and services. (b) Understand and manage relationships between diverse stakeholders from the laboratory to the field - farmer, consumer, regulator, investor
<b>Current use of course content</b>	A significant proportion of the material has been successfully developed and delivered as population Medicine elective courses in the professional DVM curriculum and for Continuing Education to clinical practitioners through Swine and Beef Executive Veterinary Program (EVP)	MS, MAS program - mainly on campus
<b>Capstone requirements</b>	Research project demonstrating ability to identify presence of infectious disease, diagnose infectious disease, cost effectively minimize disease impact on herd as a whole, eradicate infectious disease and implement preventative measures to mitigate risk of reoccurrence.	Individual research studies experience (project or internship). Written product showcasing student ability to understand and apply scientific method, capability to analyze and interpret scientific information, can effectively communicate scientific information in a field of animal sciences.



<b>Delivery format</b>	Online micro lectures, high tech animation, online interactive classrooms	Campus-based, classroom lectures, field experience
<b>Comparison/equivalency of general course content</b>		
	NO EQUIVALENCE	Genetics, genomics, bioinformatics
	Immunological homeostasis, Immunopathology	Immunophysiology
	NO EQUIVALENCE	Meat Science and muscle biology
	NO EQUIVALENCE	Nutrition
	System/facility design for infectious disease control (e.g. biosecurity, foster host resistant phenotype)	Production and environment management
	Pathogen biology	Microbiology
	Pathophysiology	Physiology
	NO EQUIVALENCE	Biochemistry
	NO EQUIVALENCE	Lactation biology
	NO EQUIVALENCE	Reproductive biology
	Infectious disease diagnostics	NO EQUIVALENCE
	Therapeutics (Antimicrobials)	NO EQUIVALENCE
	Prophylaxis (e.g. vaccination)	NO EQUIVALENCE
	Population outbreak investigation	NO EQUIVALENCE

	Applying data science in the management of infectious disease	NO EQUIVALENCE
	Clinical reasoning	NO EQUIVALENCE
	Human constraints for infectious disease management	NO EQUIVALENCE
	Economics of infectious disease in livestock systems	Agricultural economics
	Infectious respiratory disease in livestock	NO EQUIVALENCE
	Infectious gastrointestinal disease in livestock	NO EQUIVALENCE

**College of Veterinary Medicine**  
**Master of Veterinary Science**

<b>Course #</b>	<b>Elective Courses</b>
VM 5XX	Principles of homeostasis and the assessment of disruption
VM 5XX	Quantification of differences in populations
VM 5XX	An ecosystem based approach to infectious disease
VM 5XX	Infectious disease management in swine populations
VM 5XX	Infectious disease management in poultry populations
VM 5XX	Infectious disease management in ruminant populations
VM 5XX	System Management Effects on Health
VM 5XX	Animal Health Economics
VM 5XX	Motivation and leadership of human capital to improve animal health
VM 5XX	Systems based approaches to improving animal health
PATH 575	Veterinary Information Technology/Computer Applications
PATH 576	Communication Veterinary Consultion

PATH 577      Veterinary Leadership Organizational Behavior

PATH 578      Veterinary Business Management

PATH 579      Advanced Concept Swine Health Medicine I

PATH 580      Advanced Concept Swine Health Medicine II

PATH 519      Mechanisms Viral Pathogenesis

PATH 433      Virology and Viral Pathogenesis



MARKET RESEARCH BRIEF

# Market Viability of a Veterinary Training Program in **Livestock Production Medicine**

Analysis of Demand and Considerations for  
Opening an International Program

# COE Forum

**Grace Anderson**

*Market Research Associate*

**Lauren Edmonds**

*Senior Market Research Manager*

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# 1) Research Methodology

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## Project Challenge

Leadership at the University of Illinois Urbana-Champaign approached the Forum as they considered launching an international graduate veterinary training program in livestock production medicine, with a focus on swine. Through a combination of qualitative interviews with employers of livestock veterinarians and secondary research, the Forum sought to assess the market viability of an international swine production medicine training program.

EAB's market research function provides insights which guide strategic programmatic decisions at member institutions. The Forum combines qualitative and quantitative data to help administrators identify opportunities for new program development, assess job market trends, and align curriculum with employer and student demand.

## Project Sources

The Forum consulted the following sources for this report:

- EAB's internal and online research libraries ([eab.com](http://eab.com))
- "OECD-FAO Agricultural Outlook 2014-2023" Food and Agriculture Organization of the United Nations. Accessed February 12, 2016. <http://www.fao.org/3/a-i3818e.pdf>
- "Meat Atlas: Facts and Figures About the Animals We Eat" Heinrich Böll Foundation and Friends of the Earth Europe. Accessed February 5, 2016. [https://www.foeeurope.org/sites/default/files/publications/foee\\_hbf\\_meatatlasi\\_n2014.pdf](https://www.foeeurope.org/sites/default/files/publications/foee_hbf_meatatlasi_n2014.pdf)

## Research Contacts

The Forum interviewed employers at the following swine production-related organizations:

### A Guide to Contributors to Our Research

Organization	Location	Market(s) Served
Carthage Veterinary Services	Illinois	<ul style="list-style-type: none"><li>• Asia</li><li>• Eastern Europe</li></ul>
HyoVet Denmark	Denmark	<ul style="list-style-type: none"><li>• Eastern Europe</li></ul>
PIC	Minnesota	<ul style="list-style-type: none"><li>• North America</li><li>• South America</li></ul>



## 2) Executive Overview

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### Key Observations

**Trends in global pork production and consumption indicate a need for veterinarians trained in swine production medicine.** The Food and Agriculture Organization of the United Nations predicts meat production will increase 19 percent between 2014 and 2023, and pork will compose almost 29 percent of the additional meat produced. Meat consumers demonstrate increased demand for pork across the world and in developing countries particularly. Experts project people in developing countries will account for 83 percent of all extra meat consumed by 2023. Increased pork consumption and production in developing countries indicates a good market for an internationally focused swine production medicine training program. Administrators should recruit students from countries with a growing middle class (e.g., Brazil, China), to whom meat consumption represents elevated status.

**Confer epidemiology, risk assessment, and biosecurity skills to prepare students to combat issues related to large-scale meat production (e.g., disease proliferation).** The growth of industrial agriculture will increase the need for veterinary professionals trained in both clinical veterinary medicine and large-scale production. As producers raise more animals in less space than traditional farms provide, the likelihood of diseases spreading between animals increases. The trend toward large-scale production makes public health-related skills like epidemiology crucial to effective swine production management. Include coursework in epidemiology, biosecurity, and statistical analyses like risk assessment to best prepare veterinarians to work in industrial agriculture.

**Deliver a hybrid program to ensure student engagement and accommodate international travel.** A hybrid program consisting of online coursework and in-person sessions allows administrators to keep students more engaged than a fully online program, but does not require lengthy international travel. Contacts suggest the **University of Illinois Urbana-Champaign** adapt the model of the existing Executive Veterinary Program to the new program, so that students meet for training every few months across a span of six to 18 months.

**The prestigious reputation of the *University of Illinois Urbana-Champaign's* existing Executive Veterinary Program (EVP) positions administrators to open a successful international program.** Contacts would be more likely to sponsor international employees to attend a swine production medicine training program with an established reputation, and cite domestic veterinarians' high regard for the EVP as an asset in creating a new program. Contacts also note that delivery of the training program by a well-respected institution in the field, such as the University of Illinois Urbana-Champaign, would mitigate reservations employers may possess regarding online coursework.

# 3) Market Opportunity

## Global Trends

### Growing Urban and Middle Class Populations Consume More Meat

Citizens of developing countries demonstrate significantly higher growth in demand for meat than those in developed countries, where consumption levels remain steady. This leads to increased meat production, which confirms demand for an internationally focused swine production medicine training program at the **University of Illinois Urbana-Champaign**.

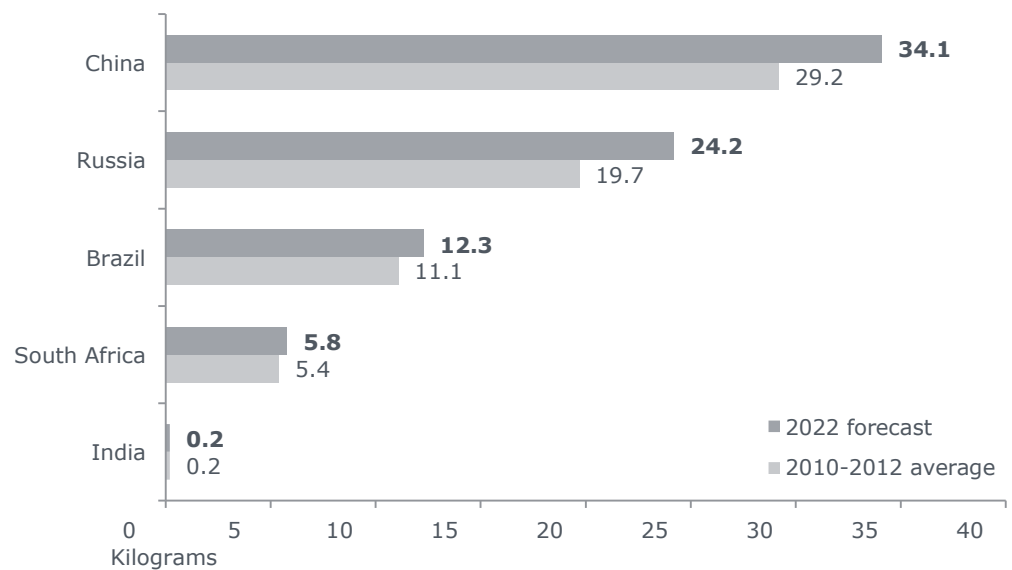
Economic growth in developing countries leads to a large middle class, who consume meat as a symbol of elevated status. Meat costs more than grains and other staples of poorer citizens' plant-based diets, therefore its consumption indicates disposable income.

In developing countries, city dwellers eat more meat than their rural counterparts, meaning that with urbanization comes increased meat consumption. For example, rural Chinese people consumed 26.1 kilograms per capita of meat, milk, and eggs in 2011; urban Chinese people consumed 48.9 kilograms per capita in the same year. As more people around the world move to cities, large-scale meat production increases, and the need for trained swine production veterinarians rises with it.

The BRICS countries (i.e., Brazil, Russia, India, China, and South Africa), a group of large developing countries, account for 40 percent of the world's population. Within these countries, meat consumption (i.e., all meats, not just pork) increased 6.3 percent each year from 2003 to 2012, and experts forecast consumption will rise a further 2.5 percent each year from 2013 to 2022.

### Pork Consumption Growth in the BRICS Countries

*Per capita consumption<sup>1</sup>*



1) "Meat Atlas: Facts and Figures About the Animals We Eat" Heinrich Böll Foundation and Friends of the Earth Europe. Page 49.

## Global Meat Production Will Increase 19 Percent from 2014 to 2023

Increased production of meat, including pork, indicates a market for a swine production training program at the **University of Illinois Urbana-Champaign**. Experts forecast global swine production will increase significantly in the next decade. A notable rise in animal feed costs over the last decade contributed to increased meat production from feed-efficient animals, including pigs. Global production of pig and sheep meat grew faster in 2013 than production of bovine meat and poultry. Asian retailers demonstrate increased demand for imported pig, bovine, and sheep meats following an outbreak of avian flu (i.e., avian influenza H7N9) that negatively impacted demand for poultry.<sup>2</sup>

### Global Meat Production Projections

*Projections for 2014-2023, compared to the base period 2011-2013<sup>3</sup>*

The United Nations' Food and Agriculture Organization predicts global meat production will increase 57.7 million tons (i.e., 19 percent) from 2014 to 2023.

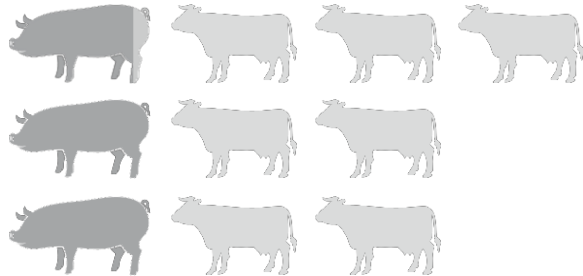
#### Developing countries will account for 78 percent of additional meat production.

This confirms the international market for a swine production medicine veterinary training program.



#### Pig meat will compose 16.7 of the 57.7 million tons of additional meat produced

(i.e., 28.9 percent). This indicates an increased need for veterinarians trained in swine production medicine.



## International Employer Demand

### Employers Express Enthusiasm for an International Swine Production Medicine Program

Contacts at PIC report large-scale (i.e., 50,000 to 200,000 animals) international farms increasingly seek veterinarians who, in addition to clinical skills, possess sufficient economic and production management training to impact farms' business. Contacts speculate that significant demand could exist for an international program at the **University of Illinois Urbana-Champaign**, in part because veterinarians commonly seek professional training.

#### Employers Ready to Enroll Students

PIC employs eight veterinarians in Latin and South America. Contacts report that, if this program existed, PIC would enroll two students immediately (i.e., one from each of two service regions) and could potentially sponsor three or four additional students from key customers in the region.

2) "OECD-FAO Agricultural Outlook 2014-2023" Food and Agriculture Organization. Page 174.

3) Page 177.

## Recruit Students from Asia and South America to Meet Growing Demand

Consumers and producers of pork in Asia and South America demonstrate significant growth. According to the Food and Agriculture Organization of the United Nations, "Developing countries will account for 83 percent of extra meat consumed in 2023... with Asian markets consuming more than half of it. In Asia, total meat consumption is expected to increase by 26 percent, driven by both strong income growth and a growing and increasingly urban population."<sup>4</sup>

Contacts at HyoVet Denmark caution that few veterinarians in Eastern Europe hold jobs influential enough in a swine production organization to justify participation in a program at the **University of Illinois Urbana-Champaign**. Veterinarians employed by swine producers in Eastern Europe typically serve in clinical roles with limited input in business decisions. However, this may change as consumption and production increase in the region.

Administrators should not apply significant resources to recruitment in the Middle East or India given religious and cultural norms regarding meat consumption (e.g., Muslims do not eat pork).

4) "OECD-FAO Agricultural Outlook 2014-2023" Food and Agriculture Organization. Page 180.

# 4) Program Characteristics

## Modality

### Deliver a Hybrid Program to Ensure Student Engagement

A program for international students that lasts longer than one to two weeks will require remote coursework. Given the variety of time zones from which veterinarians may enroll, online classes should occur asynchronously. To keep students engaged, include both remote courses and more interactive face-to-face sessions.

Administrators could successfully adapt the model for the existing Executive Veterinary Program (EVP) in Swine Health Management to a new international program. The current program consists of 10 two-day modules taught at intervals of two months across a span of two years. Contacts suggest the international program should take a similar form but with a shorter duration of six to 18 months. Consolidate modules (e.g., two modules across one four- or five-day trip to campus) to limit students' costly and time-consuming international travel.

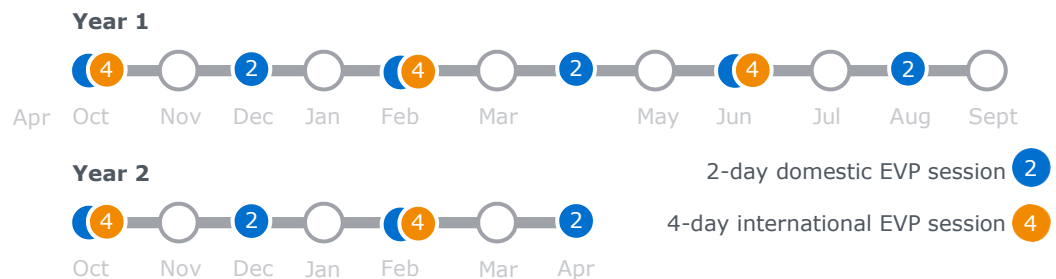
To create networking opportunities, administrators could schedule some in-person sessions for international and domestic students simultaneously.

!

**Engage Chinese Students with Face-to-Face Coursework**

Contacts caution that students from China rely heavily on memorization and repetition to learn; asynchronous coursework facilitates repetition. Include face-to-face sessions to ensure engagement with course material.

### Consolidated Module Schedule Limits International Travel



Program	Sessions	Duration	Total In-Person Days	Shared In-Person Days
International EVP	5	17 months	20	10
EVP	10	19 months		

### Confer Epidemiology, Biosecurity, and Risk Assessment Skills to Respond to Production Trends

The rise of large-scale industrial farms makes knowledge of epidemiology crucial; the probability of disease contraction and transmission increases as producers raise more animals in closer quarters. Contacts include epidemiology among the skills a swine production veterinary training program must confer. Contacts also suggest the program teach other disease-related skills such as biosecurity and diagnostics, including necropsies.

In addition to clinical skills, veterinary employees involved in swine production must learn skills related to the management of large-scale businesses, such as economics and statistics. Contacts assert swine production veterinarians should understand return on investment, statistical models, and customer pricing.

Employers also suggest a training program include courses on data analysis, and risk analysis and assessment. For example, when a virus outbreak occurs, a veterinarian should not only be able to treat the symptoms but also:

- Collect data to track the spread of the virus,
- Statistically evaluate the success rates of eradication programs, and
- Estimate the cost of implementing an eradication program.

Employers also note a need for research-related skills like trial design.

#### Asian Students Require Additional Clinical Training

Contacts at Carthage Veterinary Services note that Asian veterinary schools include less clinical training than North American and European veterinary schools. Because of this deficit, administrators of the international swine production program should distinguish between clinical and non-clinical modules. Administrators could also offer additional clinical training for students who seek it. Contacts note the importance of clinical training over production management training for Asian veterinary students, since production management does not necessarily require clinical veterinary skills.

### Skills to Confer in a Swine Production Medicine Training Program



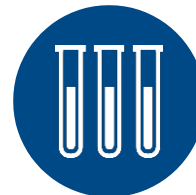
#### Clinical

- Epidemiology
- Diagnostics
- Biosecurity



#### Data Analysis

- Economics
- Statistics
- Modeling
- Risk Analysis



#### Research

- Trial Design



#### Business

- Economics

### **Award a Certificate to Increase the Likelihood of Employer Sponsorship**

Training programs that involve international travel will be expensive. Administrators should increase programs' attractiveness to employers through formal credentials. Contacts explain the value of a formal credential in certain international markets; in Mexico, where employers rely heavily on a veterinary candidate's curriculum vitae, potential students find credentialing programs particularly attractive.