

New Proposal

Date Submitted: 08/30/19 5:13 pm

Viewing: : **Livestock Systems Health,
MVS**

Last edit: 09/12/19 4:02 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. 08/30/19 5:14 pm
Deb Forgacs
(dforgacs):
Approved for U
Program Review
2. 09/03/19 9:39 am
Kathy Martensen
(kmartens):
Approved for
Provost

Proposal Type

Proposal Type:

Major (ex. Special Education)

Proposal Title

Establish major in Livestock Systems Health, Master of Vet Sci (previously EP.19.35)

Is this program an online version of an existing program? No

Official Program Name Livestock Systems Health, MVS

Banner/Codebook Name

Corresponding Degree MVS Master of Veterinary Science

Program Code:

Effective Catalog Term Fall 2020

Sponsor College Veterinary Medicine

Sponsor Department Vet Med College-Wide Programs

Sponsor Name James F. Lowe, DVM, MS DAVP, Associate Professor, Veterinary Clinical Medicine
jlowe@illinois.edu

Sponsor Email

College Contact Holly Fuson, Assistant Director, College of Veterinary Medicine Administration
hjayne@illinois.edu

College Contact Email

Is this program interdisciplinary?

No

Academic Level Graduate

Will you admit to the concentration directly?

Is a concentration required for graduation?

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

Number of Students in Program (estimate)

Year One Estimate see attached.

5th Year Estimate (or when
fully implemented)

see attached.

Estimated Annual Number of Degrees Awarded

Year One Estimate see attached.

5th Year Estimate (or when
fully implemented)

see attached.

What is the
matriculation
term for this
program?

Fall

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

Faculty Resources

Please address the impact on faculty resources including any changes in numbers of faculty, class size, teaching loads, student-faculty ratios, etc. Describe how the unit will support student advising, including job placement and/or admission to advanced studies.

see attached.

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

Will an existing tuition rate be used or continue to be used for this program?

Yes

Is this program requesting self-supporting status?

Yes

If yes, please explain

see attached.

Market Demand

What market indicators are driving this proposal? If similar programs exist in the state, describe how this program offers a unique opportunity for students:

see attached.

What type of employment outlook should these graduates expect? Explain how the program will meet the needs of regional and state employers, including any state agencies, industries, research centers, or other educational institutions that expressly encourage the program's development.

see attached.

What resources will be provided to assist students with job placement?

see attached.

If letters of support are available attach them here:

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

Program of Study

All proposals must attach the new or revised version of the Academic Catalog program of study entry. Contact your college office if you have questions.

For new programs, attach Program of Study

- [ep1935_original.pdf](#)
- [EP1935 Responses to subcom queries.pdf](#)
- [Sponsor response 1935 revision2.pdf](#)
- [ep1935_revision2.pdf](#)
- [ep1935_revision1.pdf](#)

Catalog Page Text

Catalog Page Text: Description of program for the catalog page. This is not official content, it is used to help build the catalog pages for the program. Can be edited in the catalog by the college or department.

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.

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

Statement for Programs of Study Catalog

Course List

Code	Title	Hours
Electives chosen from the following:		20
VM 5XX	Course VM 5XX Not Found (Principles of homeostasis and the assessment of disruption)	
VM 5XX	Course VM 5XX Not Found (Quantification of differences in populations)	
VM 5XX	Course VM 5XX Not Found (An ecosystem based approach to infectious disease)	
VM 5XX	Course VM 5XX Not Found (Infectious disease management in swine populations)	
VM 5XX	Course VM 5XX Not Found (Infectious disease management in poultry populations)	
VM 5XX	Course VM 5XX Not Found (Infectious disease management in ruminant populations)	
VM 5XX	Course VM 5XX Not Found (System Management Effects on Health)	
VM 5XX	Course VM 5XX Not Found (Animal Health Economics)	
VM 5XX	Course VM 5XX Not Found (Motivation and leadership of human capital to improve animal health)	
VM 5XX	Course VM 5XX Not Found (Systems based approaches to improving animal health)	
PATH 575	Vet Info Tech/Computer App	
PATH 576	Communication Vet Consultation	
PATH 577	Vet Leadership Organ Behavior	
PATH 578	Veterinary Business Management	
PATH 579	Adv Concept Swine Health Med 1	
PATH 580	Adv Concept Swine Health Med 2	
PATH 519	Mechanisms Viral Pathogenesis	
PATH 433	Virology & Viral Pathogenesis	
Biostatistics		4

Code	Title	Hours
	VMS Experiential Learning (Capstone)	8
	Total Hours	32

Other Requirements

Grad Other Degree Requirements

Requirement	Description
Other requirements and conditions may overlap	
Minimum 500-level Hours Required	12
Qualifying Exam Required:	Yes
Final Exam Required:	Yes
Minimum GPA:	3.0

DMI Documentation

Attach Final
Approval Notices

Attached
Document

Justification for
this request

Program Reviewer
Comments

Kathy Martensen (kmartens) (05/14/19 10:55 am): 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 1:54 pm): Rollback: To move to Provost queue to sync with revisions.

Key: 613

Proposal to the Senate Educational Policy Committee

PROPOSAL TITLE: Establish an online 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 | jlowe@illinois.edu

COLLEGE CONTACT: Peter D. Constable BVSc (Hons), MS, PhD, DACVIM, ACVN (Honorary) Dean, College of Veterinary Medicine 2001 S. Lincoln Ave., Urbana, IL 61802 217-300-6398 | constabl@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 increase the depth and breadth of professional knowledge for veterinarians currently in the workforce by providing a holistic approach to animal health and disease management in livestock production systems. The graduate program in Livestock Systems Health is unique in that it foregoes the traditional focus on individual animals, and redirects veterinarians to consider animal health challenges at a population and systems level, with a particular focus on the economic and food safety/public health aspects of disease management and prevention. This program will apply a lean manufacturing method tailored for the management of animal health and disease in livestock production systems. This Master's program will target veterinary graduates with a Doctorate or Bachelors degree of Veterinary Medicine, a Bachelor of Veterinary Science or an equivalent undergraduate degree for the veterinary profession¹. We believe that this program will appeal to a novel audience that is not currently reached with existing programs on campus. The graduate program has been designed in recognition that the impact of livestock disease on food production is a global issue, but that veterinarians in many non-US/European countries are unaware and inadequately trained in systems-based approaches to health management and disease prevention. This graduate program is designed to fill that educational gap for veterinarians working in the health management sector of livestock production industry, and will hopefully cater to a diverse group of needs for adult learners across the world.

The College of Veterinary Medicine at the University of Illinois at Urbana-Champaign will sponsor the Master of Veterinary Science degree program. By completing this program, graduates will acquire and demonstrate knowledge and decision-making skills that can enhance their careers and meet the growing global workforce demand for systems-based veterinary scientists. The primary customer markets for this degree offering will be domestic and overseas veterinarians working in the livestock health and disease sectors of the global animal-source food production industries. The proposed program is a 32-credit-hour degree offered in a

¹ All the degrees listed are veterinary degrees which allow the graduate to practice veterinary medicine. The differences in title are because in the US, Canada, Mexico and some other countries, the veterinary degree is a graduate doctoral program ("the American system") whereas in England, Ireland, Australia, and other current or former Commonwealth countries, the degree to practice veterinary medicine is a 5 or 6-year non-doctoral Bachelor's degree ("the British system"). While the degree name differs, all allow the degree holder to practice veterinary medicine with an appropriate license from the local licensing authority.

blended format, with the majority of coursework offered online in an asynchronous pedagogical format that is designed for adult learners with structured, in-person, applied learning experiences. The curriculum is designed to provide veterinarians with an in-depth and practical understanding of population and systems-based infectious disease control and management practices, and to equip them to apply these principles to their own on-the-job decision-making.

JUSTIFICATION:

Over the past few years, the faculty of the College of Veterinary Medicine have, through research, surveys, and collaboration with industry leaders, explored the nature and extent of veterinary workforce knowledge and skills gaps within the field of livestock health and production. These investigations have uncovered the need for education and training programs that can provide veterinarians with the scientific and clinical, systems-based knowledge and skills that can be applied to the intensive animal-source food production industries. One particular competency gap that was repeatedly identified, in both the US and global livestock sector, was the ability of veterinarians to apply a holistic, population-based view of health and disease management within production systems. The proposed program, Masters of Veterinary Science with a major in Livestock Systems Health, is designed to help fill this competency gap for specific veterinary professionals working in the livestock industry. It is anticipated that the novel design and content of this program will widen the impact and reach of the University of Illinois College of Veterinary Medicine by enrolling a new student population not targeted with current degree offerings.

An operationally efficient design aspect of this graduate program is the use of elective content that is already available through course offerings currently delivered within the Pathobiology and Veterinary Clinical Medicine departments. These current courses include content on pathogen biology, epidemiology, biostatistics and the application of clinical principles to solving animal health challenges. This established elective content will be integrated with a series of newly developed courses that will be delivered in both online and blended formats by faculty from across the College of Veterinary Medicine. Specific content from the existing on-campus electives will be used to populate portions of the on-line courses. These new courses are being developed based on the fully funded Investment for Growth proposal from 2018 and will focus on the identification and management of infectious disease and will include content on therapeutic approaches, disease control strategies, clinical reasoning, systems-based problem solving, and epidemiologic assessment of disease management. These courses do not currently exist as stand-alone offerings in the current DVM curriculum. Development plans are on time and on budget according to the schedule in the Investment for Growth proposal. All new courses will be offered in one of the departments within the college, and will follow the two-tiered course approval process that is outlined in each department's bylaws to ensure academic rigor of each course. We have been careful to design the combination of old and new courses to provide a well-rounded approach to veterinary issues from both a food safety and animal-public health perspective. The program is also designed to allow a certain degree of content individualization for the participants. An individual's path of study will be determined on a student-by-student basis following consultation with the student's advisory committee.

Currently, veterinarians seeking a master's 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 current Master of Veterinary Clinical Medicine degree is designed to prepare students for careers involving research or teaching in a clinical specialty area, and leverages a three-year clinical

residency program in a recognized veterinary discipline (e.g. cardiology with a companion animal focus) 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 Comparative Biosciences degree has specific course specializations in physiology, pharmacology, and toxicology. While the three currently available degrees provide intensive, specific training in a narrowly focused area of veterinary science, none of them seek to address the core clinical application of scientific disease control principles within livestock production systems. Our market research indicates that veterinarians employed in the livestock-based food supply chain need multi-disciplinary training in applied veterinary science that encompasses a systems-based approach to health management and disease prevention. These topics and skills are outside of the scope of currently available graduate programs at Illinois or other US/global higher education institutions.

In general terms, veterinary education available in countries classified as developing nations has not adopted a holistic systems-based approach to infectious disease management in livestock production systems, and yet many of these nations are seen as developing markets that are critical to meeting the world's food supply demand by 2050. Therefore, they have an immediate need to improve their livestock health infrastructure. Currently, livestock producers in many of these developing markets use North American and Western European veterinarians for technology transfer through consulting relationships. While this method may address short-term industry needs, it does not build the technical capacity needed to meet the projected food supply needs of these countries. This situation creates an opportune market space for the proposed Master of Veterinary Science in Livestock Systems Health.

Changes in the macro environment for animal-based food production have resulted in a significant and growing shortage of individuals in the US 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 change 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, European, and developing 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 by adjusting faculty clinical obligations. The Center for Innovative Teaching and Learning (CITL), a University resource, will be utilized to leverage existing knowledge in creative course design by allocating 100% of two experienced employees solely to the proposed program's course development and sharing technical infrastructure. 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 that details the allocation of two experienced employees at 100% to the College of Veterinary Medicine for course development as well as technical infrastructure for media assets.

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

Please see attached the letter from Dean Constable.

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.

Courses will be taught by Graduate research assistants under the supervision of the teaching faculty member. Graduate research assistants will be eligible for tuition remuneration.

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. Please see attached letters from the Veterinary Clinical Medicine

Department, Department of Pathobiology, and Department of Comparative Biosciences.

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 letter from the University Library.

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 veterinary scientist 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 veterinary scientists 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 US 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 Program Tuition Waiver Policy Form.

Desired Effective Date

Fall 2020

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 jlowe@illinois.edu

Major: Livestock Systems Health Degree offered: Master of Veterinary Science

The primary goal of the Master of Veterinary Science (MVS) degree program with a major in Livestock Systems Health is to increase the depth and breadth of professional knowledge for veterinarians currently in the workforce by providing a holistic approach to animal health and disease management in livestock production systems. The graduate program in Livestock Systems Health is unique in that it foregoes the traditional focus on individual animals, and redirects veterinarians to consider animal health challenges at a population and systems level, with a particular focus on the economic and food safety/public health aspects of disease management and prevention. This program will apply lean manufacturing method, tailored for the management of animal health and disease in livestock production systems.

The Master of Veterinary Science degree is sponsored by the College of Veterinary Medicine at the University of Illinois at Urbana-Champaign. By completing this program, graduates will acquire and demonstrate knowledge and decision-making skills that can enhance their careers and meet the growing global workforce demand for systems-based veterinary scientists. The degree program is a 32-credit hour degree offered in a blended format, with the majority of coursework offered online in an asynchronous pedagogical format that is designed for adult learners with structured, in-person, applied learning experiences. The curriculum is designed to provide veterinarians with an in-depth and practical understanding of population and systems-based infectious disease control and management practices, and to equip them to apply these principles to their own on-the-job decision making.

Required:

Required Courses	Credit Hours
Electives	20
Biostatistics	4
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 undergraduate degree depending on granting institution
2. Minimum grade point average of 3.0

Applicants for the MVS degree who do not have a DVM or equivalent post baccalaureate 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.

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.


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:



Jonathan Foreman, Associate Dean for Academic Affairs

2-22-19
Date: _____



Peter Constable, Dean

2-22-19
Date: _____

Graduate College Representative:

Date:

Council on Teacher Education Representative:

Date:



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.

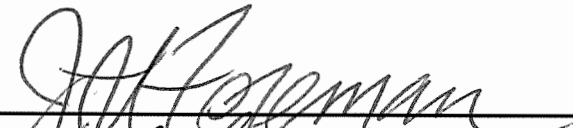
COLLEGE OR SCHOOL: College of Veterinary Medicine

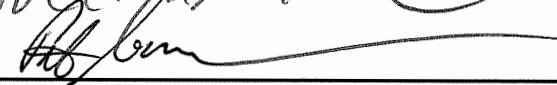
PROGRAM: Master of Veterinary Science

REQUESTED CLASSIFICATION: TRADITIONAL REIMBURSABLE SELF-SUPPORTING

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

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.
2. What type of financial assistance will be offered to students in this program?
3. Has this program had a past practice of offering graduate assistantships in the past, if so please describe.
4. 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 

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 in Livestock Systems Health 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 AGRICULTURAL, CONSUMER AND ENVIRONMENTAL SCIENCES

Department of Animal Sciences
110 Animal Sciences Laboratory, MC-630
1207 W. Gregory Drive
Urbana, IL 61801

February 27, 2019

James Lowe, DVM
Veterinary Clinical Medicine
College of Veterinary Medicine

Dear Dr. Lowe,

The Department of Animal Sciences supports the proposal from the College of Veterinary Medicine to establish an online Master of Veterinary Science degree in Livestock Systems Health. The new degree, which is under development, will focus on animal health challenges at the herd level and is intended for individuals with a DVM, B.S. in Veterinary Science, or equivalent. As the curriculum will be online, there will be no impact on courses in animal sciences. And as the degree is oriented towards animal health professionals, its impact on programs in animal sciences is anticipated to be minimal.

Sincerely,

A handwritten signature in black ink that reads "Rodney W. Johnson".

Rodney W. Johnson, Ph.D.
Professor and Head, Department of Animal Sciences
University of Illinois
Urbana, IL 61801

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

February 20, 2019

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

Dear Committee,

The Department of Veterinary Clinical Medicine (VCM) believes that the proposed Master Veterinary of Science with a major in Livestock Systems Health degree will be complementary to the existing graduate program of the department and will expand the graduate footprint of the College. Department faculty have been key leaders in the development of this proposal and faculty across the department will be critical in delivering the program.

This program will allow our department to reach a new audience not currently reached through our graduate programs. Programs like this are critical for a department with a clinical and applied focus to address the needs of stakeholders in our profession and meet the University's mission to enhance the lives of people in Illinois, across the nation, and around the world through our leadership in learning, discovery, engagement, and economic development.

The program directly addresses multiple aspects of the college's strategic plan and is a key area where the department is contributing to college goals. It directly addresses goals 2 and 3 of the strategic plan:

Goal 2. Providing transformative veterinary and biomedical educational experiences in a vibrant and diverse learning community.

Fostering student engagement and promote creativity in learners by nurturing efficiency, innovation, collaboration, and scholarship in educational practices,

Enhancing the recognized value of earning a qualification from the college by creating distinctive Illinois programs,

Increasing the teaching and learning portfolio of the college.

Goal 3. Providing excellent comprehensive veterinary medical and diagnostic services, public engagement and outreach, and continuing education programming at the state, national, and international levels.

Positioning the college as a premier source for veterinary medical education opportunities for veterinarians, animal owners, and the public,

Developing integrated engagement and outreach programs,

Establishing a center of excellence to facilitate integrative and innovative cross discipline programing in wildlife medicine, ecosystem health, public health, and livestock based food production, and food safety.

Beyond the direct benefits of an expanded graduate program for the department, the new MVS will allow the department to establish new international collaborations to facilitate scholarship. The animal health needs of the livestock based food supply chain are increasingly global and diverse. The MVS will facilitate building relationships for department and College faculty that will help them identify and contribute to solving those challenges across the globe.

We are eagerly anticipating the approval of this program and enrollment of the first students. It is a “game changer” for our college and we hope is the first of several new innovative programs to increase our impact locally, nationally and globally.

Please feel free to contact us if you have any additional questions.

Regards,



Dennis D. French, DVM, DABVP (Equine)
Professor and Head



Timothy M. Fan, DVM, PhD, DACVIM
Professor and Assistant Head
Research and Graduate Studies



COLLEGE OF VETERINARY MEDICINE

Department of Pathobiology
2522 Veterinary Medicine Basic Sciences Building, MC-002
2001 S. Lincoln Ave.
Urbana, IL 61802-6178

March 11, 2019

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

Dear Committee,

The Department of Pathobiology has reviewed the proposed Master of Veterinary of Science with a major in Livestock Systems Health. The department is supportive of its establishment in the College because it will attract a new audience of learners to the college and department, enhance our scholarly efforts through the development of new relationships across the globe and increase the teaching and learning portfolio of the department.

We believe that the new program will be attractive to a unique audience compared to our current graduate degree offerings. Our current master's degree program is targeting biomedical researchers and focuses on intensive training in either epidemiology, infectious disease, immunology, virology, bacteriology, anatomic pathology, or clinical pathology. The proposed program focuses on application of clinical principles in infectious disease management using therapeutic approaches and control strategies. Courses offered in the department as part of the proposed program will be subject to the same rigorous approval process at the Department and College level to ensure courses are academically robust and course content is unique.

The Department of Pathobiology only anticipates a positive impact on our current program from the proposed Master of Veterinary Science degree with a major in Livestock Systems Health by raising awareness of our College in the global market.

Regards,

Carol W. Maddox, PhD
Professor and Interim Head

Dongwan Yoo, PhD
Professor and Director of Graduate Studies



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

Response to the Graduate College Executive Committee

Course #	Elective Courses
	Elective courses are being produced according to the timeline and budget approved by the provost awarded Investment for Growth funds. Courses will be subject to the two-tiered course approval process within the College of Veterinary Medicine.
VCM 5XX	Principles of homeostasis and the assessment of disruption
PATH 5XX	Quantification of differences in populations
PATH 5XX	An ecosystem based approach to infectious disease
VCM 5XX	Infectious disease management in swine populations
VCM 5XX	Infectious disease management in poultry populations
VCM 5XX	Infectious disease management in ruminant populations
VCM 5XX	System Management Effects on Health
PATH 5XX	Animal Health Economics
VCM 5XX	Systems based approaches to improving animal health
PATH 575	Veterinary Information Technology/Computer Applications

PATH 576 Communication Veterinary Consultation

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

Response to the Graduate College Executive Committee

Graduate College Inquiry:

There are two perceived conflicts between the Animal Sciences and CVM graduate degree offerings:

- (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

Concern: unhealthy competition for student enrollment		
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.		
Title	Master of Veterinary Science	Master of Animal Sciences
Major	Livestock Systems Health	Animal Sciences
Target audience	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
Admission requirements	Doctorate of Veterinary Medicine or equivalent	Undergraduate degree

<p>Topic of study</p>	<p>Animal health, disease recognition, disease treatment. Management of infectious disease (therapeutic approaches, clinical reasoning, epidemiologic assessment of disease management)</p>	<p>Animal production and environment management (facilities, breeding management, nutrition)</p>
<p>Fields of specialization</p>	<p>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</p>	<p>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</p>
<p>Platform</p>	<p>Blended. Online: elective courses. Onsite: focus on application of online material through case study analysis, projects, & discussion. Selected weekends</p>	<p>Onsite</p>
<p>Degree requirements</p>	<p>Electives (20 credits), Biostatistics (4 credits), Capstone (8 credits)</p>	<p>Seminar (2 credits), Statistics (4 credits), 500 level courses (6 credits), 400 or 500 level ANSC courses (6 credits), other electives (6 credits)</p>

<p>Career trajectories of graduates</p>	<p>(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</p>	<p>(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</p>
<p>Concern: Unnecessary redundancy of course content between the two degree programs</p>		
<p>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.</p>		
<p>Content focus</p> <p>Instructors</p> <p>Programmatic learning objectives and competency outcomes</p> <p>Current use of course content</p>	<p>Impact and control of infectious disease in livestock production systems</p> <p>Clinical scientists and practicing clinicians (DVM)</p> <p>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</p> <p>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)</p>	<p>Approaches to, and principles of, livestock production</p> <p>Animal Scientists</p> <p>In depth understanding of animals 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</p> <p>MS, MAS program - mainly on campus</p>

	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



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 outreach 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 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
jlowe@illinois.edu



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

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)
- “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_meatatlas_jan2014.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"> • Asia • Eastern Europe
HyoVet Denmark	Denmark	<ul style="list-style-type: none"> • Eastern Europe
PIC	Minnesota	<ul style="list-style-type: none"> • North America • South America

2) Executive Overview

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**.

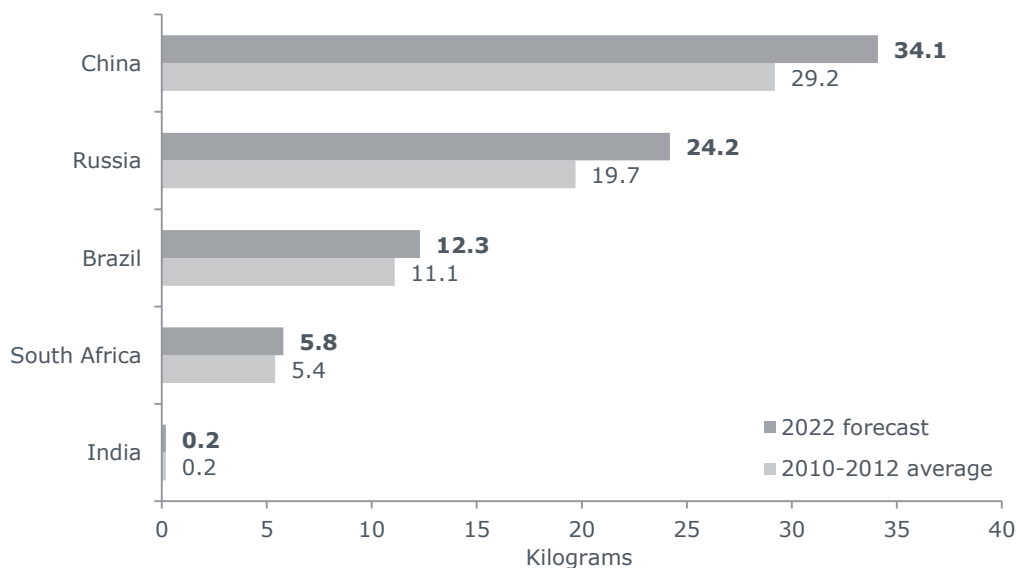
Economic growth in developing countries leads to a large middle class, who consume meat as a symbol of elevated status. Meat costs more than grains and other staples of poorer citizens' plant-based diets, therefore its consumption indicates disposable income.

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 consumption¹



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.²

Global Meat Production Projections

Projections for 2014-2023, compared to the base period 2011-2013³

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.

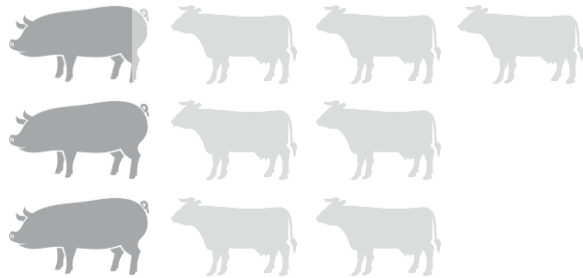
Developing countries will account for 78 percent of additional meat production.

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."⁴

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

Year 1



Year 2



2-day domestic EVP session 2

4-day international EVP session 4

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



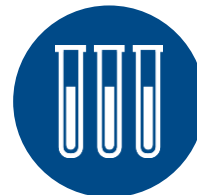
Clinical

- 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.

Friday, February 1, 2019

Dear Professor Lowe,

I am the subcommittee chair charged with your proposal for the MVS, our control number 19.35. I am responsible to collect and consolidate comments and queries to clarify your proposal for committee action. Several of my colleagues have commented on your proposal and I summarize their remarks below. Before anything, however, the committee collectively and I personally wish to acknowledge and celebrate your forward looking proposal for an interesting and valuable degree program with what seems to be solid potential. At the same time, however, we do want to insure that the promise made by the program is on track to be realized. In that spirit, we offer the following comments.

1. There is considerable confusion surrounding the proposal's target audience and delivery mode. Please consider the following:
 - a. The two paragraphs under Brief Description are almost contradictory regarding the target student audience and the goals of the program. To my mind, the second paragraph identifies a clear target audience in terms of the knowledge need, while the first paragraph is too general to be of value. Added to this would be some description of the qualifications of the intended target student audience, practicing DVMs or equivalent (I believe) rather than current students.

Please see revised two paragraphs on page 1 under the Brief Description section.

- b. This is an online program, but that isn't clear until very late in the document. Please note early that the program is online, or state more clearly what the residency requirements are relative to the online component.

Please see revised second paragraph under the Brief Description section starting on page 1.

- c. The paragraph on page 2 beginning with "Currently" discusses DVMs who want a Master's degree have several choices, none of which are adequate to meet the knowledge gap you have identified. But you don't say that. Please highlight the contrast between your proposal and other degrees.

Please see the revised 3rd paragraph under the Justification section starting on page 2

- d. Note that "low rate of enrollment by food supply veterinarians" is not really evidence of anything. Price may be too high, our College may lack in reputation, quality, or skill, or the like. Inferring from a negative is difficult. I suggest deleting the sentence.

Please see the revised 3rd paragraph under the Justification section starting on page 2.

- e. On page 3, it might help to amplify the purpose from “adequately train” to “adequately train to US ? EU? Standards of food safety” or some such.

Please see revised paragraph 4 under the Justification section on page 3.

- f. Criteria for admissions helps to identify the relevant target audience. How is an “appropriate undergraduate degree” determined? Can you give some examples? Would, for example, Agricultural Economics be an appropriate degree? Note also that the criteria at the bottom of page 2 are not quite the same as listed in the program of study (pages 7-8). Is a license to practice veterinary medicine required? Are all nations’ certifications equivalent, or only some? Which nations? Note contrast from page 7 and page 15. And shouldn’t the GRE be required of all applicants, or at least all applicants whose native language is not English? These issues are on page 8.

Please see the revised paragraph 1 under the Brief Description section on page 1 and revised admissions requirements on page 9.

- 2. The curricula and its component courses seem vague given the promise of the program. Moreover, their timely construction is a concern.

- a. Ten of the eighteen electives have yet to be approved (5XX status). Have the courses been developed? Have they been approved? Are there online versions of the courses ready to go? I cannot stress how important this question is. If half the curriculum is absent, it seems a great risk for the students.

Please see the revised paragraph 2 under Justification on page 2.

- b. Do the existing three departments see any conflicts or overlaps? For example, it appears that elective course areas overlap with existing subject areas offered. How will this be reconciled? Will none of these existing courses be allowed to be taken for this degree program?

Please see the revised 2nd paragraph under Justification on page 2 and included letters from Professor French, Department Head Veterinary Clinical Medicine and Professor Fan, Assistant Head Research and Graduate Studies of Department of Veterinary Clinical Medicine and Professor Carol Maddox, Interim Head Department of Pathobiology and Professor Dongwan Yoo, Director of Graduate Studies Department of Pathobiology.

- c. Relating the above two points, are there synergies or methods that could be used to allow MVS students to enroll in existing College courses to speed development and assure quality?

Please see the revised 2nd paragraph under Justification on page 2.

- d. The program as proposed depends heavily on “elective” coursework (20 of 32 hours, with only the 4-hr biostatistics course shared by all students). How does

the College plan to shape this into a coherent “systems” approach to the study of medicine? I ask this especially given the emphasis on on-line delivery, as this reduces the ability for establishing communities of learners.

Please see the revised paragraph 1 under Brief Description on page 1.

- e. More generally, the proposal does a persuasive job in arguing for the need for a “systems-based” approach to the subject. How is this to be implemented curricularly, given that many if not most of the students will not meet each other or share similar coursework. How does the coursework interconnect and how will the students develop an integrated knowledge of a "system?"

Please see the revised 1st paragraph under the Brief Description section on page 1.

- f. Which faculty and which committee will oversee these courses?

Please see the revised 2nd paragraph under the Justification section on page 2.

- g. Is it truly realistic to start in eight months (fall of 2019)?

Please see the revised start date of fall 2020 on page 6.

3. Are there sufficient resources to support the program?

- a. There are many new courses to be developed and taught, yet there is a claim of no new faculty or staff required. Who will teach these courses? If online, who will grade the coursework? And are all these talented people internal to the college now who are underutilized?

Please see the revised answer to 1.b on page 4.

- b. Is there a business plan or financial projection for this program? Is the \$1.5 million sufficient for all startup costs?

Startup costs and course production is on time and on budget according to the schedule in the Investment for Growth proposal.

- c. Why is there an MOU with CITL? Why is this arrangement so different than what CITL normally does that an MOU is necessary? How can CITL leverage existing knowledge in creative course design that is different than what they normally do? Why is CITL mentioned in this proposal as if they are an academic partner?

Please see the revised answer to 1.b on page 4.

- d. Will this program be delivered through Coursera? No.

4. Cleanup tasks

- a. Please add page numbers.

This is completed.

- b. Please add a college contact different from the sponsor, ideally the Dean.

Please see revised college contact on page 1.

- c. Please get a letter from the Department of Animal Sciences indicating their approval of this degree program, or at least their opinion.

Please see the included letter in the revised packet from Professor Johnson, Department Head of Animal Sciences

- d. Please have signatures collected post December 14, indicating approval of the changes required by the Graduate College. Also please add titles.

Please see revised signatures on page 7.

- e. On page 5, extend last sentence to reference the dean's letter: 'Please see attached the letter from Dean Constable'.

Please see revisions on page 4.

- f. For PATH 576, what is "Communication Veterinary Consultion"?
Please see revised spelling in Appendix A, page 2.

- g. Please clarify whether graduate students of any program will be involved in the delivery of the MVS, and whether they will be eligible for tuition waivers.

Please see revised answer to 2a on page 4.

- h. On page 10 – under 2 in both lines insert 'in Livestock Systems Health' behind 'Veterinary Science' and before 'degree'.

Please see the revised # 2 in the self-supporting justification form.

- i. Please insert into the main proposal document citations to appendices and explain their purpose. I am referring specifically to pages 13-14; 15-19; 20-21; 22-32. Each of these requires a title and an appendix label (A, B, etcetera). Most of those appear to address conflicts with other degree programs and departments, or compare curricula with competitors.

The additional documents are responses to the Graduate College Executive Committee and the proposal was submitted to the Senate by the Graduate College.

Titles were given to the documents.

- j. All programs, and certainly all master's and professional school programs, aspire to "develop critical thinking skills [and] instill the desire to be life-long learners". Opening your POS with this noble but vague aspiration risks confusing the potential student, and implicitly insults all sister programs. We suggest opening with the specific knowledge, skills, and abilities created by the program.

Please see the revised paragraph 1 under Brief Description on page 1.

These are substantial revisions. Please do not hesitate to contact me with any questions or clarifications. In addition, our chair, Gay Miller, has indicated an interest to work with you on a revision; please contact her directly if you so choose. Note too that these are initial concerns; other issues may arise in the context of committee discussion.

Let me end as I began: the committee commends your enterprise and wishes to see it succeed in producing the quality it promises.

All the best,

Steve Michael

Proposal to the Senate Educational Policy Committee

PROPOSAL TITLE: Establish an online 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 | jlowe@illinois.edu

COLLEGE CONTACT: Peter D. Constable BVSc (Hons), MS, PhD, DACVIM, ACVN (Honorary) Dean, College of Veterinary Medicine 2001 S. Lincoln Ave., Urbana, IL 61802 217-300-6398 | constabl@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 increase the depth and breadth of professional knowledge for veterinarians currently in the workforce by providing a holistic approach to animal health and disease management in livestock production systems. The graduate program in Livestock Systems Health is unique in that it foregoes the traditional focus on individual animals, and redirects veterinarians to consider animal health challenges at a population and systems level, with a particular focus on the economic and food safety/public health aspects of disease management and prevention. This program will apply a lean manufacturing method tailored for the management of animal health and disease in livestock production systems. This Master's program will target veterinary graduates with a Doctorate or Bachelors degree of Veterinary Medicine, a Bachelor of Veterinary Science or an equivalent undergraduate degree for the veterinary profession¹. We believe that this program will appeal to a novel audience that is not currently reached with existing programs on campus. The graduate program has been designed in recognition that the impact of livestock disease on food production is a global issue, but that veterinarians in many non-US/European countries are unaware and inadequately trained in systems-based approaches to health management and disease prevention. This graduate program is designed to fill that educational gap for veterinarians working in the health management sector of livestock production industry, and will hopefully cater to a diverse group of needs for adult learners across the world.

The College of Veterinary Medicine at the University of Illinois at Urbana-Champaign will sponsor the Master of Veterinary Science degree program. By completing this program, graduates will acquire and demonstrate knowledge and decision-making skills that can enhance their careers and meet the growing global workforce demand for systems-based veterinary scientists. The primary customer markets for this degree offering will be domestic and overseas veterinarians working in the livestock health and disease sectors of the global animal-source food production industries. The proposed program is a 32-credit-hour degree offered in a blended format, with the majority of coursework offered online in an asynchronous pedagogical format that is designed for adult learners with structured, in-person, applied learning experiences. The curriculum is designed to provide veterinarians with an in-depth and practical

¹ All the degrees listed are veterinary degrees which allow the graduate to practice veterinary medicine. The differences in title are because in the US, Canada, Mexico and some other countries, the veterinary degree is a graduate doctoral program ("the American system") whereas in England, Ireland, Australia, and other current or former Commonwealth countries, the degree to practice veterinary medicine is a 5 or 6-year non-doctoral Bachelor's degree ("the British system"). While the degree name differs, all allow the degree holder to practice veterinary medicine with an appropriate license from the local licensing authority.

understanding of population and systems-based infectious disease control and management practices, and to equip them to apply these principles to their own on-the-job decision making.

JUSTIFICATION:

Over the past few years, the faculty of the College of Veterinary Medicine have, through research, surveys, and collaboration with industry leaders, explored the nature and extent of veterinary workforce knowledge and skills gaps within the field of livestock health and production. These investigations have uncovered the need for education and training programs that can provide veterinarians with the scientific and clinical, systems-based knowledge and skills that can be applied to the intensive animal-source food production industries. One particular competency gap that was repeatedly identified, in both the US and global livestock sector, was the ability of veterinarians to apply a holistic, population-based view of health and disease management within production systems. The proposed program, Masters of Veterinary Science with a major in Livestock Systems Health, is designed to help fill this competency gap for specific veterinary professionals working in the livestock industry. It is anticipated that the novel design and content of this program will widen the impact and reach of the University of Illinois College of Veterinary Medicine by enrolling a new student population not targeted with current degree offerings.

An operationally efficient design aspect of this graduate program is the use of elective content that is already available through course offerings currently delivered within the Pathobiology and Veterinary Clinical Medicine departments. These current courses include content on pathogen biology, epidemiology, biostatistics and the application of clinical principles to solving animal health challenges. This established elective content will be integrated with a series of newly developed courses that will be delivered in both online and blended formats by faculty from across the College of Veterinary Medicine. Specific content from the existing on-campus electives will be used to populate portions of the on-line courses. These new courses are being developed based on the fully funded Investment for Growth proposal from 2018 and will focus on the identification and management of infectious disease and will include content on therapeutic approaches, disease control strategies, clinical reasoning, systems-based problem solving, and epidemiologic assessment of disease management. These courses do not currently exist as stand-alone offerings in the current DVM curriculum. Development plans are on time and on budget according to the schedule in the Investment for Growth proposal. All new courses will be offered in one of the departments within the college, and will follow the two-tiered course approval process that is outlined in each department's bylaws to ensure academic rigor of each course. We have been careful to design the combination of old and new courses to provide a well-rounded approach to veterinary issues from both a food safety and animal-public health perspective. The program is also designed to allow a certain degree of content individualization for the participants.

Currently, veterinarians seeking a master's 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 current Master of Veterinary Clinical Medicine degree is designed to prepare students for careers involving research or teaching in a clinical specialty area, and leverages a three-year clinical residency program in a recognized veterinary discipline (e.g. cardiology with a companion animal focus) 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 Comparative Biosciences degree has specific course specializations in physiology, pharmacology, and toxicology. While the three currently available degrees provide intensive, specific training in a narrowly focused area of veterinary science, none of them seek to address the core clinical application of scientific

disease control principles within livestock production systems. Our market research indicates that veterinarians employed in the livestock-based food supply chain need multi-disciplinary training in applied veterinary science that encompasses a systems-based approach to health management and disease prevention. These topics and skills are outside of the scope of currently available graduate programs at Illinois or other US/global higher education institutions.

In general terms, veterinary education available in countries classified as developing nations has not adopted a holistic systems-based approach to infectious disease management in livestock production systems, and yet many of these nations are seen as developing markets that are critical to meeting the world's food supply demand by 2050. Therefore, they have an immediate need to improve their livestock health infrastructure. Currently, livestock producers in many of these developing markets use North American and Western European veterinarians for technology transfer through consulting relationships. While this method may address short-term industry needs, it does not build the technical capacity needed to meet the projected food supply needs of these countries. This situation creates an opportune market space for the proposed Master of Veterinary Science in Livestock Systems Health.

Changes in the macro environment for animal-based food production have resulted in a significant and growing shortage of individuals in the US 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 change 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, European, and developing 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 by adjusting faculty clinical obligations. The Center for Innovative Teaching and Learning (CITL), a University resource, will be utilized to leverage existing knowledge in creative course design by allocating 100% of two experienced employees solely to the proposed program's course development and sharing technical infrastructure. 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 that details the allocation of two experienced employees at 100% to the College of Veterinary Medicine for course development as well as technical infrastructure for media assets.

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

Please see attached the letter from Dean Constable.

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.

Courses will be taught by Graduate research assistants under the supervision of the teaching faculty member. Graduate research assistants will be eligible for tuition remuneration.

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. Please see attached letters from the Veterinary Clinical Medicine Department and Department of Pathobiology.

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 letter from the University Library.

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 veterinary scientist 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 veterinary scientists 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 US 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 Program Tuition Waiver Policy Form.

Desired Effective Date

Fall 2020


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:



Jonathan Foreman, Associate Dean for Academic Affairs

2-22-19
Date:



Peter Constable, Dean

2-22-19
Date:

Graduate College Representative:

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 jlowe@illinois.edu

Major: Livestock Systems Health Degree offered: Master of Veterinary Science

The primary goal of the Master of Veterinary Science (MVS) degree program with a major in Livestock Systems Health is to increase the depth and breadth of professional knowledge for veterinarians currently in the workforce by providing a holistic approach to animal health and disease management in livestock production systems. The graduate program in Livestock Systems Health is unique in that it foregoes the traditional focus on individual animals, and redirects veterinarians to consider animal health challenges at a population and systems level, with a particular focus on the economic and food safety/public health aspects of disease management and prevention. This program will apply lean manufacturing methods, tailored for the management of animal health and disease in livestock production systems.

The Master of Veterinary Science degree is sponsored by the College of Veterinary Medicine at the University of Illinois at Urbana-Champaign. By completing this program, graduates will acquire and demonstrate knowledge and decision-making skills that can enhance their careers and meet the growing global workforce demand for systems-based veterinary scientists. The degree program is a 32-credit hour degree offered in a blended format, with the majority of coursework offered online in an asynchronous pedagogical format that is designed for adult learners with structured, in-person, applied learning experiences. The curriculum is designed to provide veterinarians with an in-depth and practical understanding of population and systems-based infectious disease control and management practices, and to equip them to apply these principles to their own on-the-job decision making.

Required:

Required Courses	Credit Hours
Electives	20
Biostatistics	4
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 undergraduate degree depending on granting institution
2. Minimum Graduate College Admissions Requirements

Capstone Research Project

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 the instructor. 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.

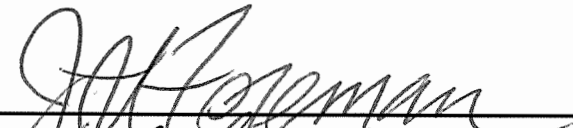
COLLEGE OR SCHOOL: College of Veterinary Medicine

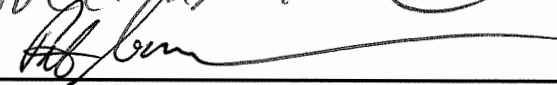
PROGRAM: Master of Veterinary Science

REQUESTED CLASSIFICATION: TRADITIONAL REIMBURSABLE SELF-SUPPORTING

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

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.
2. What type of financial assistance will be offered to students in this program?
3. Has this program had a past practice of offering graduate assistantships in the past, if so please describe.
4. 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 

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 in Livestock Systems Health 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 AGRICULTURAL, CONSUMER AND ENVIRONMENTAL SCIENCES

Department of Animal Sciences
110 Animal Sciences Laboratory, MC-630
1207 W. Gregory Drive
Urbana, IL 61801

February 27, 2019

James Lowe, DVM
Veterinary Clinical Medicine
College of Veterinary Medicine

Dear Dr. Lowe,

The Department of Animal Sciences supports the proposal from the College of Veterinary Medicine to establish an online Master of Veterinary Science degree in Livestock Systems Health. The new degree, which is under development, will focus on animal health challenges at the herd level and is intended for individuals with a DVM, B.S. in Veterinary Science, or equivalent. As the curriculum will be online, there will be no impact on courses in animal sciences. And as the degree is oriented towards animal health professionals, its impact on programs in animal sciences is anticipated to be minimal.

Sincerely,

A handwritten signature in black ink that reads "Rodney W. Johnson".

Rodney W. Johnson, Ph.D.
Professor and Head, Department of Animal Sciences
University of Illinois
Urbana, IL 61801

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

February 20, 2019

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

Dear Committee,

The Department of Veterinary Clinical Medicine (VCM) believes that the proposed Master Veterinary of Science with a major in Livestock Systems Health degree will be complementary to the existing graduate program of the department and will expand the graduate footprint of the College. Department faculty have been key leaders in the development of this proposal and faculty across the department will be critical in delivering the program.

This program will allow our department to reach a new audience not currently reached through our graduate programs. Programs like this are critical for a department with a clinical and applied focus to address the needs of stakeholders in our profession and meet the University's mission to enhance the lives of people in Illinois, across the nation, and around the world through our leadership in learning, discovery, engagement, and economic development.

The program directly addresses multiple aspects of the college's strategic plan and is a key area where the department is contributing to college goals. It directly addresses goals 2 and 3 of the strategic plan:

Goal 2. Providing transformative veterinary and biomedical educational experiences in a vibrant and diverse learning community.

Fostering student engagement and promote creativity in learners by nurturing efficiency, innovation, collaboration, and scholarship in educational practices,

Enhancing the recognized value of earning a qualification from the college by creating distinctive Illinois programs,

Increasing the teaching and learning portfolio of the college.

Goal 3. Providing excellent comprehensive veterinary medical and diagnostic services, public engagement and outreach, and continuing education programming at the state, national, and international levels.

Positioning the college as a premier source for veterinary medical education opportunities for veterinarians, animal owners, and the public,

Developing integrated engagement and outreach programs,

Establishing a center of excellence to facilitate integrative and innovative cross discipline programing in wildlife medicine, ecosystem health, public health, and livestock based food production, and food safety.

Beyond the direct benefits of an expanded graduate program for the department, the new MVS will allow the department to establish new international collaborations to facilitate scholarship. The animal health needs of the livestock based food supply chain are increasingly global and diverse. The MVS will facilitate building relationships for department and College faculty that will help them identify and contribute to solving those challenges across the globe.

We are eagerly anticipating the approval of this program and enrollment of the first students. It is a “game changer” for our college and we hope is the first of several new innovative programs to increase our impact locally, nationally and globally.

Please feel free to contact us if you have any additional questions.

Regards,



Dennis D. French, DVM, DABVP (Equine)
Professor and Head



Timothy M. Fan, DVM, PhD, DACVIM
Professor and Assistant Head
Research and Graduate Studies



COLLEGE OF VETERINARY MEDICINE

Department of Pathobiology
2522 Veterinary Medicine Basic Sciences Building, MC-002
2001 S. Lincoln Ave.
Urbana, IL 61802-6178

March 11, 2019

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

Dear Committee,

The Department of Pathobiology has reviewed the proposed Master of Veterinary of Science with a major in Livestock Systems Health. The department is supportive of its establishment in the College because it will attract a new audience of learners to the college and department, enhance our scholarly efforts through the development of new relationships across the globe and increase the teaching and learning portfolio of the department.

We believe that the new program will be attractive to a unique audience compared to our current graduate degree offerings. Our current master's degree program is targeting biomedical researchers and focuses on intensive training in either epidemiology, infectious disease, immunology, virology, bacteriology, anatomic pathology, or clinical pathology. The proposed program focuses on application of clinical principles in infectious disease management using therapeutic approaches and control strategies. Courses offered in the department as part of the proposed program will be subject to the same rigorous approval process at the Department and College level to ensure courses are academically robust and course content is unique.

The Department of Pathobiology only anticipates a positive impact on our current program from the proposed Master of Veterinary Science degree with a major in Livestock Systems Health by raising awareness of our College in the global market.

Regards,

Carol W. Maddox, PhD
Professor and Interim Head

Dongwan Yoo, PhD
Professor and Director of Graduate Studies



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

Response to the Graduate College Executive Committee

Course #	Elective Courses
	Elective courses are being produced according to the timeline and budget approved by the provost awarded Investment for Growth funds. Courses will be subject to the two-tiered course approval process within the College of Veterinary Medicine.
VCM 5XX	Principles of homeostasis and the assessment of disruption
PATH 5XX	Quantification of differences in populations
PATH 5XX	An ecosystem based approach to infectious disease
VCM 5XX	Infectious disease management in swine populations
VCM 5XX	Infectious disease management in poultry populations
VCM 5XX	Infectious disease management in ruminant populations
VCM 5XX	System Management Effects on Health
PATH 593	Animal Health Economics
VCM 5XX	Systems based approaches to improving animal health
PATH 575	Veterinary Information Technology/Computer Applications

PATH 576 Communication Veterinary Consultation

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

Response to the Graduate College Executive Committee

Graduate College Inquiry:

There are two perceived conflicts between the Animal Sciences and CVM graduate degree offerings:

- (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

Concern: unhealthy competition for student enrollment		
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.		
Title	Master of Veterinary Science	Master of Animal Sciences
Major	Livestock Systems Health	Animal Sciences
Target audience	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
Admission requirements	Doctorate of Veterinary Medicine or equivalent	Undergraduate degree

<p>Topic of study</p>	<p>Animal health, disease recognition, disease treatment. Management of infectious disease (therapeutic approaches, clinical reasoning, epidemiologic assessment of disease management)</p>	<p>Animal production and environment management (facilities, breeding management, nutrition)</p>
<p>Fields of specialization</p>	<p>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</p>	<p>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</p>
<p>Platform</p>	<p>Blended. Online: elective courses. Onsite: focus on application of online material through case study analysis, projects, & discussion. Selected weekends</p>	<p>Onsite</p>
<p>Degree requirements</p>	<p>Electives (20 credits), Biostatistics (4 credits), Capstone (8 credits)</p>	<p>Seminar (2 credits), Statistics (4 credits), 500 level courses (6 credits), 400 or 500 level ANSC courses (6 credits), other electives (6 credits)</p>

<p>Career trajectories of graduates</p>	<p>(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</p>	<p>(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</p>
<p>Concern: Unnecessary redundancy of course content between the two degree programs</p>		
<p>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.</p>		
<p>Content focus</p> <p>Instructors</p> <p>Programmatic learning objectives and competency outcomes</p> <p>Current use of course content</p>	<p>Impact and control of infectious disease in livestock production systems</p> <p>Clinical scientists and practicing clinicians (DVM)</p> <p>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</p> <p>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)</p>	<p>Approaches to, and principles of, livestock production</p> <p>Animal Scientists</p> <p>In depth understanding of animals 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</p> <p>MS, MAS program - mainly on campus</p>

	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



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 outreach 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 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
jlowe@illinois.edu



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

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)
- “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_meatatlas_jan2014.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"> • Asia • Eastern Europe
HyoVet Denmark	Denmark	<ul style="list-style-type: none"> • Eastern Europe
PIC	Minnesota	<ul style="list-style-type: none"> • North America • South America

2) Executive Overview

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**.

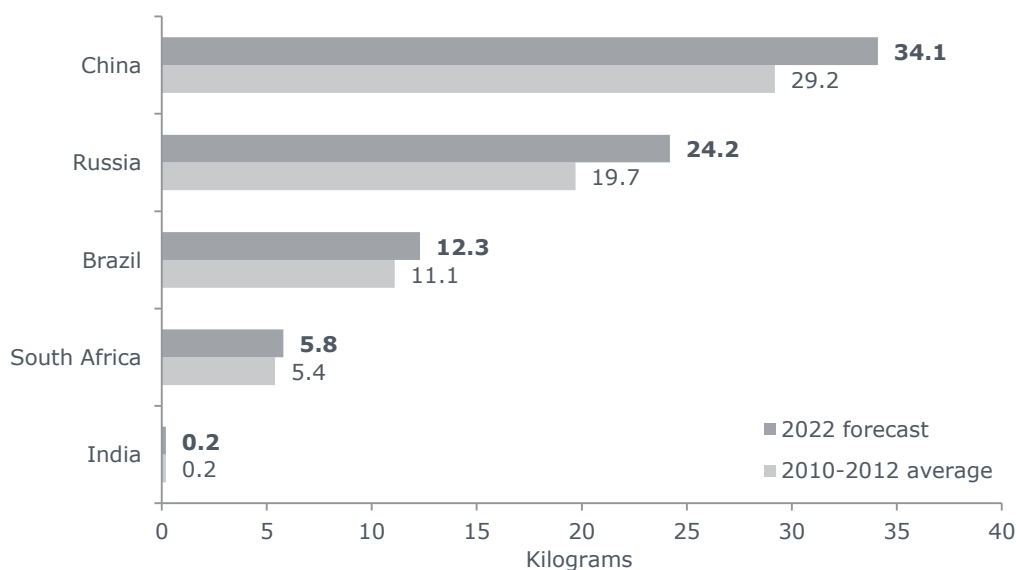
Economic growth in developing countries leads to a large middle class, who consume meat as a symbol of elevated status. Meat costs more than grains and other staples of poorer citizens' plant-based diets, therefore its consumption indicates disposable income.

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 consumption¹



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.²

Global Meat Production Projections

Projections for 2014-2023, compared to the base period 2011-2013³

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.

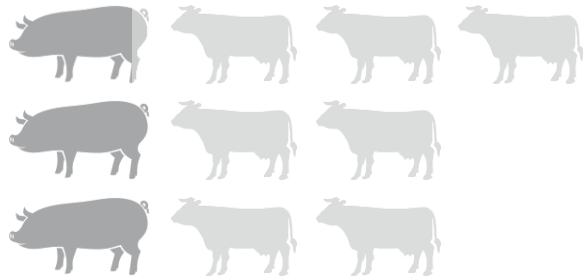
Developing countries will account for 78 percent of additional meat production.

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."⁴

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

Year 1



Year 2



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



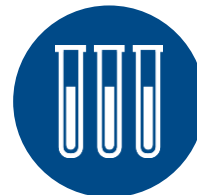
Clinical

- 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.

Dear Professor,

Our subcommittee has completed the review of your revised proposal 19.35. Below are remaining issues to be addressed before review by the full committee.

Queries:

1) “Applicants for the MVS degree who do not have a DVM or equivalent post baccalaureate 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.”

The last sentence is vague – how much of the graduate vs. the undergraduate record is taken into consideration? It would be good to have more clarity here about the number of hours from graduate as well as undergraduate studies that will be considered.

We do not have a GPA requirement beyond the Graduate College admission requirements. Please see the revised page 7 Statement for Programs of Study Catalog.

2) “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.”

It’s not clear where the last sentence about the TSE applies even to students who are exempted from the TOEFL – logically, shouldn’t the students exempt from TOEFL also be exempt from TSE? Either way, this should be clarified.

More substantively, the TOEFL guidelines given here don’t seem to match the ones on the Grad College website: <https://grad.illinois.edu/admissions/instructions/04c> . Specifically, the cut-offs of 600 and 250 are lower than what Grad College sets (610 and 253) for full admission status. And there are also more exemption criteria listed on the Grad College website that aren’t included in the above paragraph.

We do not have TOEFL or TSE requirements beyond the Graduate College admission requirements. Please see the revised page 7 Statement for Programs of Study Catalog.

3) How will you assure that the campus requirement of at least 12 graduate hours are met for the degree? <https://grad.illinois.edu/gradhandbook/3/chapter2>

As with all graduate degrees in the College of Veterinary Medicine, the students' graduate advisor is responsible for ensuring they meet the degree requirements. Our approach will be consistent with existing departmental and college practices.

Requirements for Master's Programs

- a. A master's degree program must require at least 32 hours. Usually, a professional master's program requires more than 32 hours of credit. The proportion of course work to thesis research credit is determined by the department.
- b. Every master's program must include at least 12 hours of 500-level courses, and at least 8 of these 12 hours must be in the major field. A department may determine the number of hours of thesis (599) that may count toward the 500-level requirement.

4) Lastly, the proposal states that much instruction occurs online but that the students will take existing elective courses in the various departments across CVM. It remains unclear to the committee how many of the courses involve an "in-residence" component, a full face to face course, or purely asynchronous video viewing. Also, how many students will be in residence versus distance learning, and whether the "in residence" students will be required for video capture of lectures for the "distance learning" students.

Obviously the program has not been launched yet therefore it is impossible to predict the blend of face-to-face versus online courses that will be demanded by learners enrolled in the program. It is clearly the purview of the department who host courses to approve their content and quality through the University's two-tiered approval process. All courses in this program will be fully subjected to the University's two-tiered process as we stated previously.

Cleanup, coordination, and clerical:

1. Provide page numbers. **Done**
2. page 2 – bottom of last full paragraph – last two sentences in particular. There is almost complete flexibility given the way the program is described on page 7 under Statement for Programs of Study Catalog. Revise sentences to be accurate.
Please see revised paragraph on page 2
3. Indeed, the Statement for Programs of Study Catalog seems out of line with what is written now pages 2-7. Please revise to be more reflective of the new document.
Please see revised paragraph on page 2

4. page 4 under 2)a. first paragraph - What is meant by 'staff members'? Does this mean faculty also?

"staff members" refers to the operational staff required to build the online course content.

Regarding faculty members: see 1.b on page 3 for explanation of faculty appointments.

5. page 4 under 2)a. second paragraph – how many RAs are planned for?

One initially and will scale up as the enrollment number and active courses increases.

6. page 5 – top – there is no letter from Comparative Biosciences – revise or get letter.

Please see revised page 5

7. page 7 – Appendix A. Specify the biostatistics course that will be required and get letters of cooperation from the department(s).

PATH 524 Biostatics course new distance learning section. See included letter of support from PATH.

8. At the end of the justification section, please state what the tuition will be and how that was determined.

This information is not required as part of the proposal requirements for a new degree. There is a separate tuition approval process which was submitted in October 2018. For your information, the initial tuition rate will be \$250/credit hour. That rate is consistent with the iMBA program and was determined based upon market research for our intended markets.

9. page 18 – listing of courses. Isn't there already a 'Food Animal Health Economics' course in the catalog, PATH 393? Is it the same as the proposed PATH 5XX?

We assume you mean PATH 593, and yes it is the same course. It was our oversight to not assign the correct number.

I recognize that these are substantial concerns. Our final meeting of the year is Monday the 15th. If your revisions are in hand that morning, we can attempt to address the proposal that day. If not, then your proposal will be carried over into the fall.

Thank you for your time and attention to these matters.

All the best,
Steve

From: [Michael, Steven C](#)
To: [Lehman, Barbara J](#); [Meyer, Eric K](#)
Subject: Fwd: Your proposal to senate ed policy
Date: Friday, October 18, 2019 12:30:36 PM

Hi,

Please add this email chain to the 20.03 file, and let the committee know of its presence. I believe this is as complete a set of answers as we are going to receive. I recommend discussion and resolution.

Leaving in an hour. Have fun on Monday!
Steve

Sent from my iPad

Begin forwarded message:

From: "Lowe, James F" <jlowe@illinois.edu>
Date: October 18, 2019 at 11:59:14 AM CDT
To: "Michael, Steven C" <smichael@illinois.edu>
Subject: Re: Your proposal to senate ed policy

Steve

See below.

Thank you for the help getting this moved forward.

Jim

From: "Michael, Steven C" <smichael@illinois.edu>
Date: Thursday, October 17, 2019 at 10:37 AM
To: "Lowe, James F" <jlowe@illinois.edu>
Cc: "Fuson, Holly D" <hjayne@illinois.edu>
Subject: RE: Your proposal to senate ed policy

Hi,

No worries on the delay. As I understand it, the new computer system requires two proposals, one to create the MVS and one to create the major within the degree. Hence two degrees. The certificate program was the confusing part.

I have read your responses. Let me ask for some clarification.

1. A student who takes the certificate courses can then apply those courses to the degree should he choose to do so. Otherwise, he leaves with the certificate. Is that correct? This is implied but I want to hear you confirm that directly. We want to be sure that students are protected. As an aside, this would imply that there is no difference in tuition charges between the certificate program and the degree program. **That is correct. If enrolled in the certificate program they enrolled as non-degree seeking students in the graduate college and are both paying the same tuition rate and receiving the same graduate credit. If they want to apply as a degree seeking student they can and we will transfer/credit the hours they did as a non-degree seeking student to the graduate degree.**
2. Two courses in the certificate are being taught now, and three more will be taught in the spring. Thus at least five of the courses for the MVS will be on the books and with some history in fall 2020. Is this correct? This is important to insure degree completion. Please note the highlighted area below (will are). That is very ambiguous. **We will have 5 new courses on the books by fall 2020 and have at least three more of current courses that we will offer online sections for by that time. We are on track to have the courses in place for the degree by the fall of 2021. I feel really good about our course development and we are on track.**
3. The courses that are taught now are taught online, yet the proposal form lists face to face. Help us understand the implementation of this. Does the instructor lecture to the camera today for 16 weeks, with the anticipation of adding live students in the future for the traditional on campus experience? (I understand that you will add some face to face time for the online learners.) Or, when you say “face to face,” are you referring to a one week on campus experience? Or is there a different approach? As an aside, there are no spectators / live learners in the online MBA program. **There will be both one week on campus experiences and the capstone project will be completed at least partially on campus. The majority of work will be done online for the degree but we will allow students to use existing face to face courses as credit for the degree.**
4. In your discussion below, what does EVP stand for? **Executive Veterinary Program (www.evp.illinois.edu)**

Finally, on a personal note I don't understand your parenthetical remark about not being a vet. Not relevant to the proposal, but I am curious what you meant. Sorry for the confusion. **I don't do what most people think a vet does to the point that I would never tell the public I am a veterinarian. It would be malpractice for me to work on a**

sick dog. I have no idea how to do that. I have spent most of my career in operations, primary in large swine production systems. My academic interests are in pathogen transmission by my useful skills are in operations and supply chain management. Modern pork production is manufacturing in every sense of the word. That is the world that I come from. On a side note I think you know my golf partner Peter Foreman. He has been helping us with a business course for vets here. It has been a good collaboration.

I will forward these responses to the committee once I receive them and then we should be ready to act.

Thanks so much,
Steve

From: Lowe, James F <jlowe@illinois.edu>
Sent: Monday, October 14, 2019 6:36 PM
To: Michael, Steven C <smichael@illinois.edu>
Cc: Fuson, Holly D <hjayne@illinois.edu>
Subject: Re: Your proposal to senate ed policy

Steve,

I am sorry for my delayed reply – I was away last week and finally getting to the bottom of the pile. We only submitted one proposal last year. In the transition to the new system it appears to be have been uploaded 2 times. We have not made any changes since you last saw it in the spring. The proposal is the same as it was last year for for a master's degree program. We cannot see that part of the system and have asked Jon Foreman our Asso Dean for Academic and Student Affairs and he cannot see the proposal either. We have asked Kathy M to clarify what is going on in the system for us.

See below for responses to your other questions. (in red)

Let me know what else you need. Happy to answer any questions that you have.

Jim

On 10/6/19, 5:19 PM, "Michael, Steven C" <smichael@illinois.edu> wrote:

Dear Professor,

We congratulate the College of Veterinary Medicine on the launch of your Certificates in Livestock Systems Health and Livestock Business Operations.

<https://vetmed.illinois.edu/college-organization/i-learning-center/>

You have two proposals before the Senate's Educational Policy Committee, both relating to an MVS in Livestock Systems Health, our control numbers 20.01 and 20.03. The relationship among these three is confusing to the committee (the two certificates and the one degree program). I respectfully ask you to clarify some items:

Which of the courses offered for the certificate will be offered by the degree offerings? Are these courses being offered today? It appears that some of the courses have already begun.

All of the courses that we will offer will be part of the degree. Some can be combined for a graduate certificate offered by the college. We had courses developed so we put them out there to gain experience and market understanding and decided to bundle them into a couple of certificates to see how the market reacted to them. We have 2 courses approved (VCM 560 and VCM 561) both **will are** offered this semester. There are 3 other courses under review for approval right now. We anticipate they will be available in the spring.

The two proposals at Senate suggest face to face instruction in the forms, although the documents are ambiguous in several places. Both Certificates seem to be online. What are the delivery modes?

There will be both online and face to face delivery. We anticipate a very limited amount of traditional face to face courses (16 weeks on campus) but have market data that suggests that blended course with online and an intense face to face session (long weekend up to 1 week) is of high value to potential students to facilitate application of materials. We have been watching the iMBA program carefully and think we can do some of the live Zoom Sessions (and have tested that a little bit) but there is a demand for face to face discussion from our potential students.

What is the "product strategy" behind these multiple offerings?

We know (as much as market data lets you know) that there is a continuum of learners in our market. The majority will want "quick and dirty" learning to drive changes today. But the market for swine vets to have more intensive training is substantial (we have 250+ swine vets from the US that have committed 20 days over 18 months to get an EVP certificate in a face to face program) and the biggest barrier to our current EVP model is time away from home. Our EVP alums have told us they will do more intensive training if they can do it from home. We think the certificate programs meet that need. We also know that there is a smaller but significant group of swine vets, particularly in international markets, that want an degree to validate their training. The MVS degree is a both a key market segment need and an and acknowledgement of a "real" program. We know from discussions so far, that there have been more

questions about the degree than about a certificate even though we know most will stop before the degree.

Using the principle that your certificates are an experiment designed to prove demand and deliverability, the Senate is likely to ask whether these two proposals should wait for a few years until the value is proven through the certificates. Given that the target market is practitioners, the formal degree seems less essential than the knowledge and the "pragmatic, get-it-done" expertise transmitted by your College. (Indeed, I personally applaud you for attempting a "minimum viable product" as suggested in the entrepreneurship research.) What is your response?

As I suggested above, the MVS degree is critical for provide program credibility, a key part of our go to market strategy and is desired by many in our key foreign veterinary markets. I have a long history before returning to academia running businesses (no one confuses me as a "real vet" - even our dog has a vet – because I like her) and believe that while the idea of an MVP is a great place to start, we have to have the "real thing" ready to go when the customer wants it. With the long lead time we have for degree approval (Senate, BOT, IBHC) after the EPC approves the program we need to move now on the degree. We built the certificate programs as a way to start to feed the pipeline for the degree assuming that vast majority of our students would start in a certificate program to see if they really wanted to go back to school and then would transition to the degree program. Much like the iMBA is using Coursera/MOOCs as a funnel students into the program by letting them "test drive" education before they made a purchase.

Thank you for your time and trouble.

All the best,
Steve

Steven C. Michael, Ph.D.
Professor of Entrepreneurship and Strategy
Co-Director, Hoeft Technology and Management Program
Gies College of Business + Granger College of Engineering
Faculty Advisor, Tau Beta Pi, National Engineering Honor Fraternity
University of Illinois at Urbana-Champaign