

Academic Unit Review

2018

Department of Veterinary Preventive Medicine

College of Veterinary Medicine

The Ohio State University



THE OHIO STATE UNIVERSITY

COLLEGE OF VETERINARY MEDICINE

Mission Statement

The **mission** of the Department of Veterinary Preventive Medicine is the discovery and dissemination of knowledge to prevent and control disease in populations, to promote sustainable agricultural productivity, and to enhance the health of animals, humans, and the environment.

The **mission** incorporates three components: teaching, research, and service. The teaching mission of the Department is the education of graduate, professional, post-professional, and outreach-education students in effective disease prevention and control strategies to meet current and future societal needs in veterinary medicine and public health. The research mission of the Department is the discovery of knowledge leading to the development of methods to prevent and control disease, to maximize agricultural sustainability, productivity and efficiency, and to promote health in animals, humans, and the environment. The professional service mission of the Department is to provide professional expertise to assist in the decision-making processes of animal and public health professionals, as well as local, state, national, and international organizations as they endeavor to promote the health of animals, humans, and the environment.

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Abbreviations

ADDL	Animal Disease Diagnostic Laboratory
AP&T	Appointments Promotion & Tenure
APHIS	Animal and Plant Health Inspection Service
AAAS	American Association for the Advancement of Science
ACVPM	American College of Veterinary Preventive Medicine
ALX	Affordable Learning Exchange
CCTS	Center for Clinical and Translational Studies
CDC	Centers for Disease Control and Prevention
CFGS	Council for Graduate Studies
CFAES	College of Food Agricultural and Environmental Sciences
COM	College of Medicine
CPH	College of Public Health
CTO	Clinical Trials Office
CVM	College of Veterinary Medicine
GCP	Good Clinical Practice
GLP	Good Laboratory Practice
IACC	Institutional Animal Care and Use Committee
IBC	Institutional Biosafety Committee
IDI	Infectious Disease Institute
IRB	Institutional Review Board
NIFA	National Institute of Food and Agriculture
NIH	National Institutes of Health
OARDC	Ohio Agricultural Research and Development Center
ODA	Ohio Department of Agriculture
ODNR	Ohio Department of Natural Resources
OSU	The Ohio State University
OTL	Office of Teaching and Learning
REDCap	Research Electronic Data Capture
SEI	Student Evaluation of Instruction
SRI	Scholarly Research Index
ULAR	University Laboratory Animal Resources
USDA	United States Department of Agriculture
VBS	Veterinary Biosciences
VCS	Veterinary Clinical Sciences
VMC	Veterinary Medical Center
VPM	Veterinary Preventive Medicine
VS	Veterinary Services

EXECUTIVE SUMMARY

The Department of Veterinary Preventive Medicine (VPM) is one of three departments in the College of Veterinary Medicine (CVM) at The Ohio State University. The Department was established in 1934 with the mission of preventing and controlling globally important diseases of both animals and humans. To accomplish this mission, the VPM faculty have created broad, synergistic programs to protect and promote animal health, public health, and ecosystem health. The Department currently consists of 31 regular faculty members who are involved in research, teaching, clinical service, and Extension activities. Veterinary Preventive Medicine faculty are housed on three different campuses: Columbus, Wooster, and the OSU Large Animal Services ambulatory clinic at Marysville, OH.

The Department includes faculty members with joint appointments and shared funding with other Ohio State entities including OSU Extension, the Office of Research, the Infectious Diseases Institute (Discovery Themes), the OSU College of Public Health, and the OARDC in the College of Food Agricultural and Environmental Sciences. In addition, there is an MOU in place with CFAES to create a new joint faculty position with the OSU School of Environment and Natural Resources.

Departmental faculty members provide leadership in the College by teaching applied veterinary preventive medicine topics in both the professional DVM and graduate curricula. Topic areas include veterinary population and preventive medicine, veterinary public health and zoonotic diseases, comparative medicine, and ecosystem health, among others. In addition, the VPM faculty train both MS and PhD students in the Comparative and Veterinary Medicine graduate program, and lead the unique Veterinary Public Health specialization within the College of Public Health's MPH degree program.

Research programs within the Department focus on applied preventive medicine, animal health, and zoonotic disease issues of state, national, and global importance. The focus and scope of faculty members' research programs are driven by the needs of our constituents, and contribute directly to the land grant mission of the University.

Additionally, VPM has two major clinical service units including the OSU Large Animal Services ambulatory clinic in Marysville Ohio and the University Laboratory Animal Resources (ULAR). These units provide essential clinical services and teaching to our constituents in Ohio and in other academic units within the University.

This Department's history of responsiveness to the needs of our constituents has positioned our academic programs to effectively address current and future issues of major state, national and global importance at the interface of animal health, public health, and ecosystem health.

Overview

The Department of Veterinary Preventive Medicine was established in 1934 in response to constituent needs, particularly the need for expansion of veterinary public health services. Soon after VPM was established, there was a substantial increase in CVM courses addressing topics such as food safety, population health, and disease prevention. The Department also greatly expanded graduate education in the College in the areas of epidemiology and preventive medicine. VPM gained further momentum when the USDA awarded a \$1.1 million grant in 1968 to fund a training grant in food safety, public health and disaster medicine. Throughout its existence, VPM has been responsive to constituent needs, particularly related to Ohio State's land grant mission. Some of the additional key events that transformed the Department into the successful unit it is today include the incorporation of the Food Animal Health Research Program (FAHRP) in 1982; the incorporation of the Ohio State University Large Animal Services ambulatory practice in 1991; the establishment of a new Veterinary Epidemiology program unit in 1995; the creation of the Veterinary Public Health in collaboration with the OSU College of Public Health in 2004 and leadership in the development of a multi-college Public Health Preparedness in Infectious Diseases TIU in 2006, and the ongoing expansion in the area of Ecosystem Health in collaboration with the School of Environment and Natural Resources in the College of Food Agricultural and Environmental Sciences. Building on these key programs, VPM is a leading academic unit in the nation capable of addressing major animal health, public health, and preventive medicine issues of state, national and global significance via the four key scholarly activities: teaching, creative inquiry, Extension and professional services.

The Department combines the disciplines of veterinary microbiology, epidemiology, immunology, parasitology, public health, as well as clinical service and conservation medicine. Department faculty members serve as course leaders or instructors, and teach both basic and clinical veterinary medical sciences in the professional DVM curriculum. All VPM faculty members located on the Columbus campus and at the OSU Large Animal Services clinic are involved in teaching professional students in both the core and elective curricula. Equally important, many of the faculty in Columbus and at the Ohio Agricultural Research and Development Center (OARDC) in Wooster are involved in teaching graduate students. The Department has a long and successful track record of training veterinary microbiologists and epidemiologists who have gone on to successful careers in academia, government, and industry.

The Department currently consists of 31 regular faculty members who are involved in research, teaching, clinical service, Extension and outreach activities. Department faculty members provide clinical laboratory services in the areas of bacteriology and parasitology. VPM faculty members also devote considerable effort to a wide variety of professional activities by serving on grant review panels (e.g. NIH, USDA), members of specialty board examination committees (e.g., American College of Veterinary Preventive Medicine [ACVPM]), members of national advisory panels, and editors and members of editorial boards for academic journals.

VPM is unique in that significant funding for faculty and staff positions comes from a variety of extramural sources. Eight faculty members participate in the Food Animal Health Research Program (FAHRP) at OARDC in Wooster, with most of their funding provided by the OARDC. Ohio State University Extension (OSUE) also provides funding for 2.8 FTE faculty and affiliated faculty positions and 1.0 FTE for staff. The Large Animal Services ambulatory clinic houses 5.0 FTE faculty and 3 fulltime staff in Marysville, Ohio. Most of their funding is generated by practice earnings. VPM also has a partnership with the Office of Research University Laboratory Animal Resources (ULAR) whose five faculty members are appointed in the Department. Although ULAR pays nearly all of their salaries, these faculty members are appointed in VPM which serves as their tenure-initiating unit. Finally, we have three faculty members with partial funding from the OSU Infectious Disease Institute (Discovery Themes).

The Department is diverse with regard to the responsibilities of its faculty members. The majority of 14 VPM faculty members on the Columbus campus are involved in teaching and research on infectious disease epidemiology, food safety, or zoonotic diseases. The Department currently employs 8 epidemiologists, 7 of whom participate in infectious disease research, and 4 of whom work in food safety. At the OSU Large Animal Services facility in Marysville, 5 faculty members conduct a large animal practice, and are responsible for providing clinical services and teaching senior veterinary students on a daily basis. These faculty members care for individual animals as well as practicing herd health and production medicine for all large animal species.

The FAHRP was established in 1982 when the Ohio Agricultural Experimental Station merged with the Ohio State University and became the OARDC. Academic affairs (including Promotion and Tenure) related to program administration are coordinated by the FAHRP Program Head with the Chair of VPM. The FAHRP consists of 8 faculty members who are actively involved in infectious disease research. Their research involves studying the mechanisms of disease pathogenesis of both bacteria and viruses. Three of these faculty members study poultry diseases, 3 others are involved in food safety, including both cattle and swine, and 1 faculty member studies viral pathogens of enteric and pulmonary disease significance.

Faculty or affiliated faculty members with OSU Extension (OSUE) appointments include 4 in Columbus (2.8 Extension FTE) and 4 in the FAHRP (0.6 Extension FTE). In Columbus, the OSUE appointments are primarily focused on dairy cattle health, production, and welfare. In the FAHRP at OARDC, 1 faculty is involved in Poultry Extension and 1 in Food Safety Extension. In ULAR, faculty veterinarians are involved with all research laboratory animals at OSU including cattle, horses, swine, rats, mice, rabbits, and others.

External Reputation

The Department is externally recognized for our unique teaching programs including the MPH specialization in Veterinary Public Health, and our unique OSU Large Animal Services clinical teaching and service unit. We are recognized externally for strong research programs including the Food Animal Health Research Program, and for individual research programs focused on

enteric and respiratory viruses, enteric bacteria, and antimicrobial resistance. We are recognized externally for our strong outreach program that is our Veterinary Extension teaching program. Department faculty members serve in leadership roles in a variety of national professional organizations including the American College of Veterinary Preventive Medicine, the American College of Shelter Veterinarians, and the American Association of Veterinary Medical Colleges, among others. One VPM faculty member was the recipient of the 2017 Distinguished Alumni Award from the NC State College of Veterinary Medicine. Another VPM faculty member is a member of both the National Academy of Inventors and the National Academy of Science.

Major changes since 2009

Since 2009, we lost a major contract to provide clinical veterinary services to farms owned by the Ohio Department of Rehabilitations and Corrections. That contract supported two clinical-track faculty members and three support staff, and those positions have all been lost. The contact provided significant clinical teaching opportunities for professional students, and the loss of those opportunities has had a negative impact on our students. The loss of access to those farm clients and the faculty instructors forced us to cancel our advanced preventive medicine clinical rotation, which was a core clinical rotation for students in our food animal Career Area of Interest for veterinary students, and an elective for all others. We have been unable to identify an alternative learning experience to replace this clinical teaching resource.

Since 2009 we have also reduced the size of our regular faculty from 36 to 31 members. In addition to the loss of the two clinical track positions that were previously supported by the lost ODRC contract described above, we have also converted multiple regular faculty positions to temporary affiliated faculty positions, primarily to meet specific college personnel needs without a long-term financial commitment. These affiliated faculty positions can and do make important contributions to the departmental mission in a manner similar to that of regular faculty members. However, the temporary commitment to these positions is not as conducive to long-term programmatic development.

We have also recently committed to expanding our programmatic efforts in the area of Ecosystem Health as an extension of our One Health approach. We have expanded our faculty positions committed to this area by adding a new research-intensive faculty member fully funded by commitment of new university funds (Discovery Themes and PHPID). In addition, we have created a new joint faculty position with the School of Environment and Natural Resources in CFAES that when filled will be expected to lead the development of a new graduate specialization in Ecosystem Health within the existing Master of Environment and Natural Resources degree program.

FACULTY

The VPM faculty currently consists of 31 regular faculty members, which is down from 36 at the time of our last review in 2009. Of these, 20 (65%) are tenure track and 11 (35%) are clinical track. There are currently three additional auxiliary faculty members with term practice-track appointments. Of the 31 regular faculty, 12 (39%) are at the rank of Professor, 8 (26%) are at the rank of Associate Professor, and 11 (35%) are at the rank of Assistant Professor. The VPM faculty consists of 17 (55%) males and 14 (45%) females, although those numbers are reversed for VPM Assistant Professors where 55% are female. Twenty-five (81%) of VPM faculty hold the DVM degree, 22 (71%) the PhD degree, and 12 are board certified by either the American College of Veterinary Preventive Medicine (n=7) or the American College of Laboratory Animal Medicine (n=5).

Faculty recruitment, mentoring, and retention

The Department attempts to recruit excellent faculty members to fill open faculty positions by conducting competitive national searches. We value diversity, extensive and appropriate training and experience, strong indicators of future excellence in teaching and scholarship, and evidence of good professional citizenship and contributions to a positive work culture when conducting our faculty searches. We attempt to nurture the career development of all faculty members, and maintain an environment that promotes excellence in teaching, research, service, and outreach by the faculty.

The Department has different expectations for faculty members, depending upon the nature of their appointment. All faculty members are expected to contribute to departmental teaching efforts in the professional DVM or the graduate curriculum, including the mentoring of graduate students. A large number of core and elective professional DVM courses are currently taught by VPM faculty, including didactic courses in the first 3 years of the professional curriculum and 2 fourth-year clinical rotations at the OSU LAS practice in Marysville and on the Columbus campus. In addition, faculty members are encouraged to teach elective courses in their fields of interest and expertise.

Faculty members who have a primary research appointment are expected to have a focused research program leading to national and international recognition. Faculty members are expected to regularly seek and obtain competitive funding to support their research programs, train graduate students and publish their research findings in appropriate peer-reviewed scientific journals. They and their graduate students also are expected to present their research at regional, national and international meetings so as to enhance the overall recognition of the individual's and the Department's research programs

VPM faculty members in the ULAR and at the OSU Large Animal Services in Marysville, Ohio have primarily clinical service and teaching appointments. The ULAR faculty primarily provide clinical service to support the university research enterprise that utilizes animals in research,

incorporating both clinical and classroom teaching. The OSU LAS practice has been in operation since 1968, and the faculty members provide clinical service to a public clientele, promote the clinic to enhance practice revenue, and teach fourth-year veterinary students the art and science of veterinary medicine in a large animal ambulatory practice setting.

All VPM faculty members are expected to contribute to professional service at the Department, College, and University levels. In addition, they are encouraged to serve in national and international professional organizations appropriate for their disciplines. The Chair's approval of service assignments is based upon a balance between the overall level and scope of the service demands of the Department and the stage of a faculty member's career.

Faculty members with OSU Extension appointments are expected to develop Extension teaching programs that bring research findings to stakeholders, including veterinarians, industry, and the public. In addition, all VPM faculty members are encouraged to contribute to meaningful and significant outreach and engagement with our Ohio constituents. Outreach occurs when collaborations are developed outside of the academic community with institutions and individuals in education, business, and public and social services. This activity enhances the mission of the Department and increases the impact of these contributions to the university and society.

Diversity

We value and pursue diversity in our faculty as a fundamental component of excellence, and it is required for us to fully fulfill our mission. We believe that the CVM best serves the needs of the veterinary profession by embracing the broadest definition of diversity including racial, ethnic, religious, gender, sexual orientation-identity, socioeconomic, geographical background, work, military, educational experiences, and challenges in life that have been overcome. Within the CVM, Dr. Mary Jo Burkhard serves as the Associate Dean for Faculty & Staff Affairs, Inclusive Diversity, and Planning. Dr. Burkhard's office serves as a college resource to aid in our efforts to ensure diversity in the faculty. The CVM has implemented specific training programs to raise awareness of implicit bias and the benefits of diversity. In addition, a "Community of Inclusion" diversity certificate program has been created to recognize and encourage participation in diversity-oriented learning experiences. Members of the VPM faculty are encouraged to participate in these training programs and to complete the diversity certificate program.

All VPM faculty members that participate on faculty search committees are required to complete implicit bias training. In addition, each faculty search committee has an assigned diversity advocate in accordance with university expectations. Ensuring diversity in qualified applicant pools can be challenging when there are only a limited number of potential applicants for highly specialized positions. Regardless, we have made significant progress in ensuring diversity of our faculty. In particular, we have made important progress in increasing the number of female VPM faculty members to be more consistent with the gender distribution of the student population that we currently train in the CVM. Currently, 45% of VPM faculty

members are female, an increase from 35% in 2009 and only 15% in 2003. In addition, the VPM faculty currently includes 3 (10%) African Americans and 10 (32%) that joined the faculty as foreign nationals, both of which have increased since 2009.

Intellectual Life of the Unit

Departmental and college research seminars serve as a focal point of academic exchange for the department, including faculty, graduate students, and invited external speakers. In the college graduate student seminar series, PhD students are required to present two seminars during their training programs, and MS students once. In addition, MPH student in the Veterinary Public Health specialization are required to present a departmental seminar describing their culminating project. Seminars in the CVM are aligned with its research signature programs of infectious diseases, cancer, and neuromuscular disease/regenerative medicine, with faculty members choosing to attend seminars that align to their interest. In addition to research seminars, VPM hosts a monthly Applied Field Epidemiology Program meeting in which representatives from local, state, and federal agencies who also serve our constituents share current activities and events of common interest that engages VPM faculty, staff, and students.

Faculty Development

The VPM faculty are encourage to seek professional development opportunities that support their personnel career goal and the mission of the department, and financial support is provided when appropriate. The College of Veterinary Medicine, through the office of the Associate Dean of Faculty & Staff Affairs, Inclusive Diversity, and Planning, routinely offers faculty professional development training opportunities. These opportunities are often targeted toward junior faculty members, but all interested faculty who might benefit from the training are welcome to attend. Multiple members of the VPM faculty have participated in University professional development activities including the course design institute offered by the University Center for the Advancement of Teaching. Members of the VPM faculty have participated in professional development training opportunities offered by national professional organizations including the American Association of Veterinary Medical Colleges. The AAVMC offers a Leadership Academy to help develop future academic leaders in veterinary medicine which meets in-person and remotely regularly for an entire year. Three members of the VPM faculty have completed the AAVMC Leadership Academy during the review period. In addition, two VPM faculty members have taken Faculty Professional Leave at global institutions to benefit their scholarly programs.

Trends in Academic Appointments

The VPM faculty has traditionally been a diverse mixture of teaching, research, clinical service, and Extension oriented appointments. Tenure track faculty are expected to contribute to the departmental mission through scholarly teaching, research, and service. Clinical track faculty

are expected to contribute to the departmental mission primarily through their teaching and clinical service. Since 2009, we have increased the proportion of VPM faculty with clinical track appointments. This has been in response to the need to best match the academic appointment of the faculty member with the expectations and responsibilities for the position. Of note, we have begun to utilize affiliated faculty positions (practice track) in the place of regular faculty positions for various appointments, primarily Veterinary Extension positions. We currently have five affiliated practice-track faculty appointments in VPM, three of which are positions with primary OSU Extension appointments. We have chosen to utilize practice-track for these positions primary because they allow greater flexibility in the hiring process than is available for regular faculty searches. However, the regular use of affiliated faculty positions is not conducive to the long-term success of the VPM faculty in fulfilling our mission because affiliated faculty are not subject to the same scholarly expectations and academic rigor that is provided by routine peer review and evaluation of regular faculty members.

VPM RESEARCH PROGRAMS

The research mission of the Department of VPM is ***the discovery of knowledge leading to the development of methods to prevent disease, to maximize agricultural sustainability, productivity and efficiency, and to promote health in human and animal populations.***

Consistent with this mission, innovative research is one of the most important scholarly activities of the VPM faculty. The various research programs in the Department mainly focus on applied preventive medicine and zoonotic disease issues of state, national and international importance. The focus and scope of a faculty member's research program reflects professional interests as well as constituent needs and the department mission, including serving as a resource for graduate education and research training. Faculty members are expected to regularly seek competitive extramural funding to support their research programs. Published accounts of research, particularly peer-reviewed publications in scholarly journals, are the primary indicators of research productivity. In addition, all regular tenure track faculty members and their graduate students are expected to present the results of their research at regional, national or international meetings or workshops on a regular basis to obtain additional peer review and increase recognition of the individual's and the Department's research programs.

The VPM faculty are fully engaged in college and university programs intended to support and facilitate infectious disease research, including the CVM Signature Program in Infectious Diseases and the OSU Infectious Disease Institute. VPM faculty members provide leadership of multiple focus areas within both the CVM and the OSU programs, which benefits our engagement and access to resources. In addition, these programs effectively encourage and facilitate cross-college collaborations which can strongly benefit VPM research program.

The total research FTE in the Department of VPM has increased from 7.45 in 2003 to 8.7 in 2008 to 12.3 FTE today. The 12.3 research FTE in VPM include the 4.8 located at the Columbus campus and 7.5 at the Wooster campus in the FAHRP of the OARDC. VPM faculty members have developed strong research programs that have gained national and global recognition. During the eight fiscal years included in this review, VPM faculty generated over \$36M in research expenditures and facilities and administrative costs, or over \$4.5M per year. Annual research expenditures increased steadily over the period of this review.

VPM total research expenditures and F&A FY10-FY17

	Expenditures	F&A	Total
FY2010	\$2,512,641	\$677,884	\$3,190,525
FY2011	\$2,931,700	\$800,439	\$3,732,139
FY2012	\$3,074,578	\$843,878	\$3,918,456
FY2013	\$3,539,669	\$956,637	\$4,496,306
FY2014	\$3,768,920	\$1,094,215	\$4,863,135
FY2015	\$4,007,215	\$1,242,545	\$5,249,760
FY2016	\$4,002,617	\$1,310,038	\$5,312,655
FY2017	\$4,432,706	\$1,218,715	\$5,651,421

The VPM faculty receive competitive extramural research from a variety of sources, but most frequently from the USDA National Institute of Food and Agriculture. In addition, individual programs have received competitive funds from the NIH NIAID and the US CDC. These research expenditures routinely lead to peer-reviewed scientific manuscripts with VPM faculty averaging over 150 authorships on scientific manuscripts each year during the review period. Some examples of scientific manuscripts produced by VPM faculty are included in the appendix.

VPM has strong research programs that serve the animal and human community in the state of Ohio and the US. Historically, the Department had a somewhat limited research mandate, and its major focus was on Extension and student teaching. However, beginning in the 1990's a number of strong research programs developed to address specific needs of our constituents, and the VPM faculty have since made a commitment to establishing strong research programs. Currently, the research programs in the Department address key preventive medicine and zoonotic disease issues of global significance including influenza virus, food safety issues, animal welfare concerns, and antimicrobial resistance among others. Some of the leading research programs located in VPM are summarized below.

The Food Animal Health Research Program (FAHRP) includes eight VPM faculty located on the OARDC campus in Wooster. The FAHRP faculty have research-intensive appointments, and their research programs focus is on pathogenesis, epidemiology, prevention, and control of animal diseases. They emphasize basic and translational studies on enteric, respiratory, and immunosuppressive diseases including their zoonotic potential. We have historically strong research programs located in both the FAHRP and on the Columbus campus addressing the epidemiology, pathogenesis, and zoonotic potential of avian influenza virus. In addition, we have strong research program located on both campuses addressing issues of food-borne pathogens and antimicrobial resistance, and their impact on both animal and human populations. Finally, we have strong research programs addressing critical global infectious zoonotic disease issues such as rabies control in developing countries including Ethiopia.

VPM EDUCATIONAL PROGRAMS

The teaching mission of the Department of VPM is ***the education of graduate, professional, post-professional, and outreach-education students in effective disease prevention and control strategies to meet current and future societal needs in veterinary medicine and public health***. We do not teach undergraduate students. VPM faculty members play important roles in the College's core and elective professional curriculum, and in the graduate teaching curriculum. Departmental faculty members provide leadership in teaching applied veterinary preventive medicine topics in both the professional and graduate curricula. Topic areas include veterinary epidemiology, preventive and population medicine, comparative medicine, ecosystem health, and veterinary public health.

Teaching in the Professional DVM curriculum

The professional DVM curriculum at The Ohio State University CVM consists of 3 years of didactic coursework followed by a final year of clinical rotations. VPM faculty members teach both core and elective courses in each of the first 3 didactic years, and clinical rotations in the final clinical year. Given a class size of approximately 162 students, this provides considerable classroom contact between VPM faculty members and professional DVM students.

In the core professional curriculum, VPM faculty members are responsible for teaching, and provide the primary leadership for seven major CVM core courses located throughout the first 3 years of the curriculum. These represent 14 semester hours in the core professional DVM curriculum, in addition to the significant contributions VPM faculty make to other core courses led by faculty members in other Departments. VPM teaching in the core professional curriculum is designed as a sequential series of courses rather than multiple independent courses. For example, the preventive medicine series includes Veterinary Epidemiology and Population Systems (VMCOLL 6510), Zoonotic Diseases (VMCOLL 6646), and Emerging Diseases and Public Veterinary Practice (VMCOLL 6611) in the first 3 years of the professional curriculum. The parasitology series includes both a didactic course and an applied laboratory course that are integrated in the curriculum.

VPM faculty members also are responsible for 2 core clinical rotations located in the fourth (clinical) year, representing an important contribution to the senior year clinical rotations. Five Departmental faculty members at the Marysville Large Animal Services facility effectively spend 100% of their work effort teaching senior veterinary students in the Large Animal Services rotation VMCOLL 7700.07. In addition, Departmental faculty members at the Columbus campus spend full days with senior veterinary students for 2-week rotations throughout the year. The VMCOLL 7700.24 preventive medicine clinical rotation is the Department's capstone teaching experience and serves as the culmination and application of the didactic material presented in the preventive medicine series of courses earlier in the curriculum. The Large Animal Services

fourth year rotation in Marysville has been developed to allow students to apply their didactic training in a large animal practice setting.

In addition to the core professional DVM curriculum, VPM faculty members also teach and provide primary leadership for 33 elective courses in the professional curriculum, representing a significant number of student contact hours in the elective professional curriculum.

VPM faculty members also contribute substantially to core and elective courses in the professional curriculum for which faculty members in other departments have primary responsibility.

The VPM faculty are leaders of two core clinical rotations in the fourth year of the professional DVM curriculum. The Large Animal Ambulatory Services clinical rotation (VMCOLL 7700.07) is located at a successful ambulatory practice in Marysville Ohio serving large animal clients throughout central Ohio. The Preventive Medicine clinical rotation (VMCOLL 7700.24) teaches applied preventive medicine practices at multiple locations around Ohio including the OSU swine farm, Cooper Farms, and the Columbus Zoo among others. These core clinical rotations have been developed to teach students the application of the preventive medicine concepts taught during the first three pre-clinical years of the curriculum.

Core courses in the CVM professional DVM curriculum taught by VPM faculty members.

Course Number	Year	Course Title	Cr Hr
VMCOLL 6510	Yr 1	Introduction to Epidemiology and Population Systems	3
VMCOLL 6641	Yr 1	Introduction to Animal Behavior	1
VMCOLL 6565	Yr 2	Introduction to Animal Welfare	1
VMCOLL 6646	Yr 2	Zoonotic Diseases	2
VMCOLL 6610	Yr 3	Veterinary Parasitology	2
VMCOLL 6611	Yr 3	Emerging Diseases and Public Veterinary Practice	3
VMCOLL 6614.06	Yr 3	Professional Development III	2
VMCOLL 7700.24	Yr 4	Applied Veterinary Medicine: Preventive Medicine	2
VMCOLL 7700.07	Yr 4	Applied Veterinary Medicine: Large Animal Ambulatory Services	2

Professional Curriculum Outcomes Assessment

The primary measure of student success in the professional DVM curriculum is the ability of students to successfully enter professional practice and become outstanding veterinarians. One measure of their preparedness is successfully completing the professional board examination (North American Veterinary Licensing Examination [NAVLE]). Student success for recent years is approximately 98% pass rate.

Another important measure of student success in the professional curriculum is the employment rate of new graduates. In recent years, over 95 percent of OSU DVM graduates have secured their next position at the time of graduation. The average number of job offers

has ranged from 1.9 to 2.2 offers per candidate. The average starting salary of all OSU 2018 DVM graduates was \$65,860, nearly identical to the national average for DVM graduates.

**2018 AVMA Survey of Graduating Veterinary Students:
National & The Ohio State University Reports**

Average Starting Salaries						
CLASS OF 2018	OHIO STATE			NATIONAL		
Job Type	#	%	Average Salary	#	%	Average Salary
All Students	116		\$65,860	2396		\$65,992
Advanced Training	40	34%	\$30,617	815	34%	\$33,578
Public or Corporate	2	2%	\$54,280	63	3%	\$71,846
Private Practice	75	65%	\$84,495	1518	63%	\$83,098
Food Animal Exclusive	3	3%	\$81,333	41	2%	\$82,702
Food Animal Predominant	5	4%	\$77,500	58	2%	\$74,016
Mixed	14	12%	\$70,143	238	10%	\$73,104
Companion Animal Predominant	5	4%	\$81,000	213	9%	\$84,830
Companion Animal Exclusive	47	41%	\$91,374	920	38%	\$87,233
Equine	N/A	N/A	N/A	42	2%	\$52,646
Other Employment	N/A	N/A	N/A	6	0%	\$89,875

Teaching in the CVM Graduate Curriculum

Members of the VPM faculty teach a variety of courses in the graduate curriculum, which is primarily intended to support training of MS and PhD students and MPH students in Veterinary Public Health specialization. Many of the courses have been developed specifically to complement and extend, rather than duplicate, similar courses available in other Colleges such as Public Health or Food, Agriculture, and Environmental Sciences. This allows for efficient use of faculty time and provides more variety of course opportunities for graduate students.

VPM faculty members are responsible for teaching 24 courses that can be taken for graduate credit. The course series of Zoonotic Diseases (VETPREV 7721), Food-borne Diseases (VVETPREV 7722), Biosecurity and Environmental Health (VETPREV 7723), and Veterinary Epidemiology (VETPREV 7725) provide the required core series of courses for students enrolled in the Veterinary Public Health MPH specialization program. However, MS and PhD graduate students

in the CVM also regularly enroll in these courses, as do graduate students in other Colleges such as Public Health and Food, Agriculture, and Environmental Sciences.

Graduate Curriculum Outcomes Assessment

Assessment of the success of the graduate curriculum is closely tied to the success of the CVM graduate training program in general. The primary measure of student success in the graduate curriculum is the ability of students to successfully enter a professional career following completion of the graduate degree requirements. During this assessment period, 48 PhD candidates and 25 MS students completed their degrees in the CVM graduate program with VPM faculty advisors. These graduates have gone on to jobs in academia, federal, state, and local government agencies, and private industry

Courses in the graduate and elective Professional DVM curriculum taught by VPM faculty members

Course Number	P/G	Course Title	Cr Hr
VETPREV 7612	P	Nutrition of Food Animals and Equine	3
VETPREV 7710	P/G	Ecosystem Health Conservation Medicine	3
VETPREV 7710.25	P	Advanced Preventive Medicine	2
VETPREV 7710.54	P	Advanced Laboratory Animal Medicine	2
VETPREV 7710.55	P	Applied Veterinary Medicine: Beef and Dairy Production Medicine	2
VETPREV 7710.56	P	Capstone Rotation in Dairy Production Medicine	2
VETPREV 7717	P	Introduction to Shelter Medicine	1
VETPREV 7720	P/G	Laboratory Animal Medicine	2
VETPREV 7721	P/G	Epidemiology of Zoonotic Diseases	3
VETPREV 7722	P/G	Foodborne Diseases, Food Animal Production Systems, Food Safety	3
VETPREV 7723	P/G	Biosecurity, Environmental Health, Veterinary Public Health Topics	3
VETPREV 7724	P	Contemporary Issues in Animal Welfare	1
VETPREV 7725	G	Veterinary Epidemiology and Applied Data Analysis	3
VETPREV 7730	P/G	Emerging Zoonotic Diseases in a Global Context	2
VETPREV 7735	P	Veterinary Practice Management	1
VETPREV 7745	P	Basic Exotic Animal Medicine - Non Mammalian	1
VETPREV 7760	P/G	Opportunities in Global Veterinary Medicine and Public Health	2.5
VETPREV 7761	P	Tropical Animal Husbandry and Health	1-3
VETPREV 7770	P/G	Zoo and Wildlife Medicine I	1
VETPREV 7771	P/G	Zoo and Wildlife Medicine II	1
VETPREV 7773	P	Bovine Palpation	3
VETPREV 7774	P/G	Bovine Theriogenology	1
VETPREV 7775	P	Interactive Experiences in Laboratory Animal Medicine	1
VETPREV 7776	P/G	Dairy Herd Management and Preventive Medicine	2
VETPREV 7778	P/G	Topics in Dairy Production Medicine	1
VETPREV 7779	P	Diseases of Swine	2
VETPREV 7780	P	Veterinary Forensics	2
VETPREV 7781	P	Advanced Topics in Zoo and Wildlife Medicine	1
VETPREV 7895.01	P/G	Current Topics in Laboratory Animal Medicine	1
VETPREV 7895.02	P/G	Literature of Production Medicine	1
VETPREV 7895.02	G	Critical Evaluation of the Scientific Literature	1
VETPREV 7895.03	P	Critical Evaluation of the Scientific Literature	1
VETPREV 7896	P/G	Veterinary Disaster Response	1
VETPREV 8613	P	Preventing Metabolic Diseases-Records Analysis for Dairy Cattle	3
VETPREV 8700	G	Molecular Epidemiology of Infectious Diseases	3
VETPREV 8724	P/G	Advanced Concepts in Biodefense & Emerging Infectious Diseases	2
VETPREV 8782	G	Veterinary Clinical Epidemiology	1
VETPREV 8810	G	Principles of Epidemiologic Theory	2
VETPREV 8830	P/G	Modeling Transmission Processes Control of Infectious Diseases	3
VETPREV 8851	G	Laboratory Animal Medicine 1-5	2-10
VETPREV 8891	G	Comparative and Veterinary Medicine Graduate Student Seminar	1

Graduate Studies in VPM

The CVM maintains a college-wide graduate program in Comparative and Veterinary Medicine that trains graduate students (MS and PhD) in preparation for careers in biomedical, clinical, and applied epidemiological research and related fields. Significant need exists at the national and international levels for skilled scientists and unique veterinarians who are trained in modern translational research methods to apply advances in medicine to improve animal and human health. The CVM Council for Graduate Studies (CFGS) is a standing committee charged with formulating, communicating, and implementing policies and procedures to promote graduate education within the CVM leading to the MS and PhD degrees. The CFGS has equal faculty representation from all three departments including VPM and is overseen by the Associate Dean for Research and Graduate Studies. Recognizing the commonality between human and animal medicine translational research at the College of Veterinary Medicine is at the forefront of advancing discoveries in basic research that can be taken from the field, clinic or the laboratory bench and applied to the patient's bedside and to the population as a whole. Upon graduation from our program, students have gained an understanding of hypothesis-based research and the training necessary to pursue a variety of careers in academia, government, and industry.

Since 2009, VPM faculty have mentored 48 PhD students and 25 MS students in the college graduate program to completion of their degrees. In addition, VPM faculty have contributed to the training of numerous other graduate students training in other CVM departments or in other OSU graduate programs. The acceptance criteria into the college graduate program are a GPA of 3.0 on all previous undergraduate work, a GPA of 3.3 on all previous graduate work and a GRE above the 25th percentile on the verbal test and above the 50th percentile on quantitative test. For international students, a TOEFL score of 79 is required. Since 2012, the average of the verbal GRE was 47% and the average of the quantitative GRE was 68% for students accepted into the college graduate training program. The course work for graduate students is individual adapted to their specific area of study by the student's Graduate Advisory Committee with the only fixed requirements being one statistics course and training in research bioethics. Students are encouraged to take their candidacy exam after two years in the program. Evidence of at least one first-author manuscript submitted (MS) or accepted/published (PhD) in a peer-reviewed scientific journal must be presented to the Graduate Program Coordinator before a request to graduate will be approved.

Graduate training by VPM faculty is generally closely aligned with the Land Grant mission of the University. The VPM faculty provide specialized education and experience for individuals interested in areas such as prevention and control of animal disease; promotion of animal health, animal welfare and production; zoonotic diseases, food safety, as well as conservation medicine and ecosystem health. Veterinary epidemiologists traditionally have been a core faculty group in VPM, and graduate training in the field of veterinary epidemiology has always

been a prominent program at the OSU CVM. Graduates of our Veterinary Epidemiology graduate program have gone on to leadership positions in academia, industry, and the federal government. In addition, the epidemiology and pathogenesis of enteric and respiratory viruses has traditionally been an area of strength in our graduate training program in VPM.

A more unique training program in VPM is our Veterinary Public Health specialization within the Master of Public Health degree program. We partner with the College of Public Health to administer the official VPH specialization within their degree program. The focus of this training program is to train public health officials with expertise in zoonotic infectious diseases. The required curriculum for the specialization has been developed based on the ideal curriculum designed by the American College of Veterinary Preventive Medicine (ACVPM). Our VPH educational program has been accredited by the ACVPM since 2010, making DVM graduates of our VPH-MPH program immediately eligible to sit the board examination. Beginning in 2015, we created a VPH residency program to provide DVMs in the MPH program the opportunity to participate in additional professional development and training activities to benefit their career preparation. To date we have graduated five VPH residents, with three more currently completing residency training programs.

Admission to the VPH-MPH program is competitive, and we typically admit 12-15 new students each year, although that number can vary. Since 2006, we have graduated 168 students in the Veterinary Public Health specialization with MPH degrees. Of these graduates, 32 are DVMs and 26 have taken the Preventive Medicine board examination, all of whom are now diplomates of the ACVPM (100% pass rate). Our VPH-MPH graduates find jobs in private industry as well as federal, state, and local governments. In addition, our VPH students are competitive for additional profession degree programs as 86% of our student that have applied for DVM or MD training programs following the MPH degree have been accepted.

We also offer a unique graduate residency training programs in the area of Laboratory Animal Medicine, recognized by the American College of Laboratory Animal Medicine. This program enrolls 1-2 new residents each year for a 3-year clinical training and MS degree program. Upon completion of the program, the residents are prepared to sit the ACLAM specialty board examination.

Another unique training program is our graduate residency training program in conservation medicine and ecosystem health. This is a joint training program administered in collaboration with the Columbus Zoo and The Wilds. We admit one resident into this three-year training program each year. The residents complete clinical training and an MS degree program spending on year at each participating institution. Upon completion, the residents are prepared to sit the American College of Zoological Medicine specialty board examination.

Future Plans for VPM Graduate Training Programs

We are currently planning increase the number of VPM courses that we offer for graduate credit. This will include both traditional classroom and online courses designed for our own students, but that will also attract students from related disciplines in graduate programs across campus. We are also planning for, and currently developing an online version of the Veterinary Public Health MPH degree program. We intend to adapt, but not duplicate our traditional VPH-MPH program in order to attract and meet the training needs of a different student population. The online program will target working professionals unable or unwilling to quit their job in order to return to graduate school for specialized.

We are also in the process of creating a new specialized graduate training program with a focus on Ecosystem Health in collaboration with the School of Environment and Natural Resources in the CFAES. This program will be modeled after the successful administrative and programmatic structure of the VPH-MPH program. We intend to create a specialization in Ecosystem Health within the existing Master of Environment and Natural Resources degree program within SENR. We will administer the specialization within VPM while the students fulfill the requirements for both the specialization and the degree program. This degree program will initially

OUTREACH AND ENGAGEMENT

In the Department, outreach and engagement are broadly defined as meaningful collaborations with partners outside of the academic community. Department partners in this mission include institutions and individuals in education, business, and public or social service. Faculty, staff, and student members engaged in outreach and engagement are recognized for their efforts, and outcomes from these activities will enhance other missions of the Department and expand the impact of faculty, staff, and student contributions to the University and society. Department faculty members, as well as staff and students, partner with a variety of organizations to provide outreach to the community and citizens of the State of Ohio as well as nationally and internationally.

All VPM faculty members are expected to participate in outreach and engagement activities that support the mission of the Department. Most frequently, these types of activities are based on the established reputations and recognized expertise of VPM faculty members which results in invitations to participate. The details of expectations are provided in the Departmental Patterns of Administration. However, the primary mechanism of VPM outreach is through our Veterinary Extension teaching program.

OSU Extension in VPM

The Cooperative Extension service was established in 1914 by the Smith-Lever Act, and was designed as a partnership of the USDA and the land-grant universities which were authorized by the Federal Morrill Acts of 1862 and 1890. Today, this educational system includes professionals in each of America's original 1862 land-grant universities and the Tuskegee Institute as well as in the 16 1890 land-grant universities. In most states, educational offerings are in the areas of agriculture and food, home and family, the environment, community economic development, and youth and 4-H.

Extension is clearly defined as an “educational system,” and since the late 1980’s, Extension in Ohio has been referred to as Ohio State University Extension. Employees at the county level currently have the title of Extension Educator. The Mission Statement for OSU Extension is *Engaging people to strengthen their lives and communities through research-based educational programming*. OSU Extension’s vision statement reads: *OSU Extension is a dynamic educational entity that partners with individuals, families, communities, business and industry, and organizations to strengthen the lives of Ohioans. As Extension educators, we focus on critical economic, environmental, leadership, and youth and family issues; engage people in lifelong learning; apply knowledge and practical research to the diverse needs and interests of Ohioans; extend resources of the Ohio State University; recruit and develop volunteers to multiply Extension's efforts while developing their leadership potential; enhance teamwork through networking and connectedness; link youth, family, and community needs to scholars in Ohio and nationwide; and teach with cutting-edge strategies using new technologies and approaches.*

Veterinary Extension is a core unit within VPM. Extension veterinarians in the Department serve as State Extension Specialists as well as faculty members of the CVM. Funding for these positions is shared between OSU Extension and the CVM, or OARDC within CFAES. Unlike Veterinary Extension at some other universities, state specialists in veterinary medicine at OSU often hold tenure track positions in the Department and are expected to demonstrate excellence in teaching, scholarship, and professional service as are other tenure track faculty in the CVM. Extension education (teaching) programs are the principal Extension focus rather than diagnostic service, in order to best meet the needs of our constituents. Most Extension educators provide programming material in numerous formats. Programs typically involve producers, veterinarians and the public using various teaching methods and technologies.

Our current Veterinary Extension programs focus on dairy cattle health, production, and welfare. An example of a highly successful Extension teaching program in this area is the Ohio Dairy Health Management Certificate Program for practicing veterinarians. Veterinarians that complete this program receive specialized training in dairy management, and this training program has been approved by the American Board of Veterinary Practitioners as one pathway to board eligibility. Many other successful training programs focused on dairy producer education and worker training in a variety of areas are routinely delivered.

In December of 2017, our Poultry Extension Veterinarian was recruited to another similar job at a peer university with a larger poultry health program, leaving our position vacant. In January of 2018, we lost our Public Health Extension Veterinarian, and that position remains vacant as well. VPM Veterinary Extension faculty subsequently met with the leadership of OSU Extension to set our strategic priorities for the Veterinary Extension program. We agreed that filling the Poultry Veterinarian position with another highly qualified individual is our top priority, as well as an expectation of our poultry industry constituency in Ohio. Our next priority was identified as a restructuring of the Animal Welfare Extension position to increase FTE from the current 0.30 to at least 0.65 FTE by redirecting resources previously committed to the Public Health Extension position. Finally, we identified the creation of a new Companion Animal Shelter Extension Veterinarian as a third priority when new funds become available. Unfortunately, current budget limitations in the college are preventing the implementation of this strategic plan.

We have recently taken the temporary approach of filling Extension Veterinarian positions with affiliated faculty rather than regular faculty members. This approach has been effective in allowing us to quickly meet personnel needs without the time and expense of national searches. However, in the future it will be important that we recruit Veterinary Extension faculty members as regular faculty using national searches in order to maintain the scholarly credibility required to fulfill the mandate of the Veterinary Extension program.

VPM Clinical Service Units

The Department offers two important population-based clinical services to help fulfill its land grant mission. These include the OSU Large Animal Services ambulatory clinic and the University Laboratory Animal Resources (ULAR) unit. These units provide essential clinical services to the Ohio general population (LAS) and to other academic units within the university by providing laboratory animal resources (ULAR) support and through collaborative research projects. These core groups are designed to manage resources effectively and provide coordinated approaches to core services that assist in the research, education, and service missions of the Department. The faculty director of each of the core services develops service policies and collects operational data. These data are used in financial decisions related to Department resources. Each core will take advantage of and encourage opportunities to improve or expand state-of-the-art technology that furthers the research, education and service missions of the Department. These core clinical service units also serve as important educational resources as they allow students to learn veterinary practice while providing quality service to clientele. Following is a more detailed description of these two service units.

The OSU Large Animal Services

The concept of an OSU Large Animal Ambulatory Services unit was originally developed by Dr. Vernon Tharp in the 1960s. His idea was to have a working large animal practice for the fourth (clinical) year veterinary students to learn and participate in large animal practice. The purpose was to provide them with routine, daily general practice experiences that were not available in the tertiary-care teaching hospital environment. After much discussion and effort, he was successful and the practice in Marysville was purchased in 1968 from Dr. John Andreas. The operation continues to this day to be a general large animal ambulatory practice, servicing all species of large animals. The practice as currently structured was initiated in September of 1991. At that time, the 2.5-veterinarian practice was given the mandate to be financially solvent. A fee schedule was created to reflect the current standards and to maintain a competitive balance with area private practices. In 1994, the practice became part of the Department of VPM. Initial yearly income generated from the practice fell short of the \$300,000 per year goal. A major boost in the practice came with the acquisition of a neighboring, competitive veterinary practice. To capture the clientele, an additional veterinarian was brought into the Marysville practice. At this stage, with a 3.5-person practice, the Marysville service had added an additional 4 counties to its 7-county range. With the growth in range and clientele, another full-time veterinarian was added to the practice in 2000 with the elimination of the half-time position.

An integral part of the OSU LAS practice is the clinical training of professional DVM students who rotate through the facility at 2-week intervals. An intensive program has been created to insure that all students in the rotation receive essential training in the basics of large animal veterinary ambulatory practice. Each morning begins with a seminar designed to give the students information that will help them during their daily activities in the practice. Faculty

members use driving time in the trucks as a teaching opportunity, using syllabi or workbooks to facilitate discussion. Each truck has a unique list of topics to cover, in addition to discussions of case material. A post-rotation test covering all topics discussed in seminar and in the trucks is utilized to further motivate students. The test contributes significantly to the learning value of the rotation. All faculty members at OSU Large Animal Services also participate in teaching at the Columbus campus on a regular basis.

Today, there are five full-time faculty veterinarians and a veterinary intern trainee at the OSU Large Animal Services, with students in the practice 365 days per year. The practice projects total revenue of approximately \$2M for FY2019. The OSU LAS is likely to remain as a core clinical service unit in the college into the foreseeable future, particularly given that it is one of the few clinical rotations where the professional DVM students receive training and experience in general practice. The geographic boundaries of the practice are already extensive, but further expansion may be required in order to meet the needs of our constituents for large animal veterinarians in private practice. Meanwhile the current practice standard will be maintained, while providing excellent service for clients and high-quality clinical learning opportunities for students. Currently, the practice is growing veal calf, dairy cattle, and equine clients. This unit also utilizes its unique learning opportunity by admitting students for externships from different colleges of veterinary medicine for training in clinical rotations and ambulatory services when appropriate, without impacting the educational experience of OSU students.

University Laboratory Animal Resources

There are currently five clinical-track faculty members based at the ULAR, each with a 0.50 FTE appointment in VPM. The role of faculty laboratory animal veterinarians in VPM is to promote the specialty of laboratory animal medicine, educate veterinary students on the appropriate use of animals in research, and to enhance knowledge related to biomedical animal care and use. This is accomplished by conducting relevant research and participating in national professional organizations such as the American College of Laboratory Animal Medicine (ACLAM) and the American Association for Laboratory Animal Science (AALAS). The clinical service responsibilities of the laboratory animal faculty includes the research enterprise of the entire University, and their activities impact all aspects of biomedical research. The diverse expertise of the laboratory animal faculty provides a valuable resource to the University's research community with regard to the use of animals in their work. It is important to our research community that the responsible stewardship of animals in research is assured. The role of the laboratory animal veterinary staff, as dictated by federal regulations, is to ensure the public that the animals used for research receive proper care and advocacy at the institutional level. A highly trained and compassionate laboratory animal faculty is necessary to meet these expectations. The laboratory animal faculty members regularly participate in educational meetings within the specialty as well as at the institutional level.

The ULAR faculty members in VPM have always made important teaching contributions to the professional DVM curriculum in addition to their considerable clinical service duties. They frequently contribute to core and elective courses, and provide leadership of some courses. In addition, they have always made important contributions to the clinical training of students through their contributions to the core Preventive Medicine clinical rotation. For this course, all students spent one day with the ULAR group learning applied preventive medicine and population health in laboratory animal populations. Unfortunately, the cost of maintaining a laboratory animal colony strictly for this class has become prohibitive, and so this teaching of Laboratory Animal Preventive Medicine in the Preventive Medicine clinical rotation has been discontinued, which is a loss for the training of our students.

INFRASTRUCTURE AND RESOURCES

Finances

OSU has a responsibility centered budget model. This means that General Fund revenues and departmental/college expenses are explicitly linked to the revenue generating units. A portion of general fund revenues is withheld to support university-wide services, and the remainder is distributed to the colleges with the respective deans being the fiscally responsible persons and ultimately making the financial decisions. In the past, the dean of CVM allocated set budgets to the three departments which could use their respective departmental facilities, faculty lines and cash within wide discretion. Recently, this has changed with faculty lines and facilities now being college responsibilities and the departments applying for an annual budget which must be approved by the dean. This budget model for the CVM was introduced for FY2017, and is still being revised and optimized. As a consequence of the restructuring of the college budget, some sources of income for the department have been shifted to the college, as have some expenses that were previously the responsibility of the department.

Staffing

The departmental staffing levels have changed since 2009. A number of functions including purchasing, human resources, financial administration, as well as grant proposal submission and administration have been moved from the departmental to the college level. Consequently, a number of staff positions have moved from the department to the college. Currently, the department has one general support staff position in the VPM department office, and a second program support position at 0.5 FTE in the CVM to support the Veterinary Public Health MPH degree program. Another instructional support position supports the parasitology teaching program and clinical service laboratory.

Academic Support

Academic support is provided by the offices of the Associate Dean for Professional Programs and the Associate Dean of Research and Graduate Studies. The Office of Teaching and Learning is overseen by the Associate Dean for Professional Programs and fosters innovation and promotes excellence in veterinary medical education through strategic support for curricular, instructional, and assessment activities in both clinical and pre-clinical environments. The office aims to build the faculty community and culture around learning-centered education. Staff members provide consultation and faculty development programming for course design or re-design, learning theory and its application in veterinary medical education, identifying and measuring achievement of learning outcomes, effective and innovative instructional models, educational technology to enhance learning and promote collaboration, maximizing learning and course management systems, teaching and learning communities of practice, evidence-

based best practices or Scholarship of Teaching and Learning, methods for evaluating teaching effectiveness and online, hybrid, or distance modules/courses.

The Grant Support Office is overseen by the Associate Dean for Research and Graduate Studies. It supports grant and proposal submissions, coordinates submission with the Office of Sponsored Programs, assists with boiler plate documents (Face Page, Resources, Biographical Sketches, etc.) and helps to coordinate permission to seek off-campus funding forms (PA-005). Post-award, the office supports grant administration by assisting investigators with grants management via PI Portal, by providing training and consultation, and by assisting with time and effort reporting (e-certification). The office also helps identify potential funding agencies.

Space

The department utilizes space on the main CVM campus in three buildings. Sisson Hall is the main departmental building with the office of the chair, office space for faculty and students, as well as research laboratories. Classroom space and additional research laboratories are located in the Veterinary Medicine Academic Building. Facilities in Sisson Hall are primarily overseen by the VPM chair. The clinical parasitology diagnostic laboratory is housed in the lower level of the Veterinary Medical Center with oversight by the hospital director. The research laboratories in the Veterinary Medicine Academic Building are overseen by the Associate Dean of Research and Graduate Studies. Whereas the space in VMAB is up-to-date, some renovations are necessary for the laboratory space in Sisson Hall and the Veterinary Medical Center.

Financial Resources of the Department

In comparison to other top-ranked CVMs, the State of Ohio provides among the lowest amount of state support. The amount of state support in the form of subsidy for veterinary medical education on a per student basis among the top 10 peer colleges of veterinary medicine ranges from \$19,450 to \$56,000, with the average being \$44,245. The amount of subsidy provided to Ohio State (\$19,450) is less than half of the average of the top 10 and is near the bottom of all 30 colleges (all data from 2015). For VPM, the only source of income is 10% of VPM faculty release time which is generated through grants by VPM faculty. This minor source of income is inadequate to be used for programmatic purposes, and so departmental programs are totally dependent on the financial support provided by the college.

GOVERNANCE

Dr. Rustin Moore became Dean of the CVM in September 2015. He appointed Dr. Roger Fingland as Executive Associate Dean, Executive Director and Chief Medical Officer in November 2015 in an attempt to streamline the operational efficiency and governance structure at the CVM. Dr. Mary Jo Burkhard was appointed in October 2015 as Associate Dean for Faculty and Student Affairs, Inclusive Diversity and Planning with an emphasis on her role in diversity and strategic planning. Under Dean Moore, the college has greatly improved its success in fundraising (from about \$2M/yr 10 years ago to about \$20M/yr in FY16), and has increased its efforts in respect to diversity, and streamlined operations by moving departmental resources to the college. Now decisions regarding faculty lines, laboratory and office space, and faculty recruitment packages are made jointly by the college leadership and the Department Chair.

Dean Moore appointed Dr. Thomas Wittum as Chair of VPM in 2016 for a full four-year term following one year of service as interim Department Chair.

College Faculty Council

In 2017, Faculty of the College of Veterinary Medicine overwhelmingly approved the establishment of a Faculty Council. The Faculty Council represents and advocates for faculty and advises administrators. The Faculty Council consists of 3 representatives from the Department of Clinical Sciences, 2 representatives from the Department of Veterinary Biosciences and 2 representatives from the Department of Preventive Medicine. Currently, representatives serve for 2 years, and a maximum of 2 consecutive terms. The Faculty Council meets at least 4 times a year, and invites guests (from administration or faculty) as needed. Drs. Liu and Wellman represent VBS, and Dr. Wellman serves as President of Faculty Council.

Department Administration and Decision-Making

Policy and program decisions are made in a number of ways: by the department faculty as a whole, by standing or special committees of the department, or by the chair. The nature and importance of any individual matter determines how it is addressed. Department governance proceeds on the general principle that the more important the matter to be decided, the more inclusive the participation in the decision.

Chair

The primary responsibilities of the chair are set forth in Faculty Rule 3335-3-35, <http://trustees.osu.edu/rules/university-rules.html>. The chair will lead the department with integrity, by positive example. Leadership will be consistent with University rules and appropriate faculty governance policies. General responsibilities of the chair are as follows:

- The chair has general administrative responsibility for department programs, subject to approval by the dean of the college, and conducts the business of the department efficiently. This broad responsibility includes the acquisition and management of funds and the hiring and supervision of faculty and staff. The chair is responsible for maintaining appropriate oversight of the activities of faculty and staff members.
- The chair plans with the members of the faculty and the dean of the college a progressive program that encourages and promotes activities of the department faculty related to teaching and learning, research and innovation, outreach and engagement, and resource stewardship.
- The chair evaluates and improves instructional and administrative processes on an ongoing basis. Improvements in instruction are based upon student and peer evaluation of courses and instructors, and periodic course reviews by the faculty.
- The chair evaluates faculty members annually in accordance with both university and department established criteria.
- The chair recommends faculty appointments, promotions, tenure (for tenure track faculty), and dismissals to the dean of the college, in accordance with procedures set forth in Faculty Rule 3335-6 (<http://trustees.osu.edu/rules/university-rules.html>) and this department's Appointments, Promotion and Tenure Document.
- The chair ensures that all faculty members, regardless of their assigned location, are offered Department privileges and defines faculty responsibilities and tasks appropriate to their rank. The chair should carry out these duties in a manner that promotes a high level of morale and collegiality, such that: civility and mutual respect characterize interactions among faculty, staff and students; evaluations are based on performance; diversity is valued; persons refrain from jokes, innuendos, and other forms of discourse whose purpose or effect is to humiliate or degrade others. The chair will be proactive in addressing any evidence of behavior contrary to the above.
- The chair facilitates or provides adequate supervision and mentoring of faculty, staff, and students who may benefit by such assistance.
- Operational efficiency requires that the chair exercises a degree of autonomy in establishing and managing administrative processes. The articulation and achievement of department academic goals, however, is most successful when all faculty members participate in discussing and deciding matters of importance. The chair will therefore consult with the faculty on all educational and academic policy issues and will respect the principle of majority rule. When a departure from majority rule is judged to be necessary, the chair will explain to the faculty the reasons for the departure, ideally before action is taken. Regular communication will be utilized to achieve transparency in decision making.

Committees and Organizational Meetings

Much of the development and implementation of the department's policies and programs is carried out by ad hoc committees. Ad hoc committees are appointed at the discretion of the Chair or Associate Chair in areas of their purview. Examples of Ad Hoc Committees include search committees and the computer committee. The Chair or Associate Chair shall specify who will serve on and who will chair these committees. Auxiliary, courtesy, and emeritus faculty may be appointed to ad hoc committees.

Standing committees are those, which, by the continuity of their activities, are important to the effective function of the department. The standing committees are the Departmental Promotion and Tenure Committee (P&T), and the Committee of Eligible Faculty (CEF). Formation of ad hoc committees is utilized to address focused issues requiring faculty input in specific areas. Many of the duties that were previously the responsibility of the Department, have been assumed by college committees with representatives from each department.

Appointments, Tenure and Promotion Process

The faculty appointments, tenure and promotion process is intended evaluate the performance of faculty based on their appointment assigned distribution of effort. This process is administered by the VPM P&T committee in collaboration with the VPM Department Chair following the guidelines provided in the Departmental Appointments, Promotion, and Tenure governance document. The committee of Eligible Faculty is also engaged in the process as needed.

The VPM Promotion and Tenure Committee or the Committee of Eligible Faculty is the departmental regular faculty standing committee that will advise the chair when performing evaluations of potential or current regular faculty as described in the processes for appointment, annual review (particularly 4th year review), promotion, reappointment, and tenure. The P&T committee membership will include all faculty, but attendance at the meeting will be restricted to faculty holding a higher rank than the candidate being considered and be subject to limitations based on faculty rules 3335-7-04 and 3335-7-37, which specify governance rights for clinical and research faculty.

One member of the committee at the rank of tenured Professor is elected by simple majority of the committee as Chair of the P&T committee. One member of the committee at the rank of tenured Professor will be elected by the membership to serve for the academic year as the Procedures Oversight Designee (POD). The POD will be responsible for assuring that reviews for all faculty members are procedurally correct, fair, based on performance, and free of bias against under-represented groups.

Faculty Meetings

VBS has monthly faculty meetings. The agenda is set by the chair, and time is given to various committees and faculty for announcements. Minutes of each faculty meeting, including a list of those faculty present, are recorded by the administrative assistant of the chair and are posted on a secured internal website. The faculty meeting mainly serves informational purposes.

KEY FUTURE INITIATIVES

Diversity. We are actively seeking to enhance the diversity of our faculty to better represent our constituent populations, including our students. One key initiative is to increase the number of female faculty members in VPM to above 50% in order to better represent the gender distribution of our student population.

Research. We intend to increase our commitment to scholarly research that will directly benefit our constituents by increasing the number of faculty research FTE in VPM. The most logical approach is to take advantage of the existing University Discovery Themes program and our strong relationship with the OSU Infectious Disease Institute.

Extension. Veterinary Extension, through our historically strong partnership with OSU Extension, has always been a core program in VPM. In recent years, financial pressures have made it difficult to maintain our commitment to Veterinary Extension specialists as regular faculty members, but that is required to maintain the scholarly credibility of the program. We intend to return to Veterinary Extension specialists as regular faculty members in the CVM.

Graduate Students. One of the primary limitations on graduate student training in VPM is the lack of availability of graduate student stipends. PhD students trained by VPM faculty are supported by competitive research grants obtained by individual faculty members. Identification of a permanent source of funds to assist faculty members with graduate student stipends will be important to increasing the number of graduate students that we train in the future.

Residents. We have successful residency training programs in Laboratory Animal Medicine, Conservation Medicine and Ecosystem Health, and Public Health. Identifying new resources to support these successful residency programs will allow them to expand to benefit our clinical service, teaching, and research programs. In particular, there is considerable opportunity to utilize our Veterinary Public Health residents to support teaching, research, and service activities in VPM because these activities directly contribute to their residency programs.

Online Teaching. We are currently planning to expand our teaching programs to incorporate online classes as well as an online degree program. The main limitation is that these courses represent additional workload for existing faculty members who are already expected to maintain our current classroom teaching. Identifying existing or new faculty FTE that can be committed to online teaching will be critical to the success of this initiative.

Ecosystem Health. We have committed to creating a new Ecosystem Health program in VPM that incorporates three core faculty positions, professional and graduate courses, a new joint training program with SENR in the CFAES, and focused research programs. The process of developing this new program is currently underway, but not yet complete.

VPM Faculty Awards and Honors

International Awards

Wolf Prize in Agriculture

Linda Saif (2015)

National Awards

Fellow, National Academy of Inventors

Linda Saif 2017

Distinguished Alumni, NCSU College of Veterinary Medicine

Wondwossen Gebreyes (2017)

One Health Scholar, American Association of Veterinary Medical Colleges

Armando Hoet (2016)

University Awards

Hazel C. Youngberg Distinguished Professor

Wondwossen Gebreyes (2016)

University Distinguished Scholar

Thomas Wittum (2014)

College Awards

Zoetis Research Award

Andrew Bowman (2018)

Chang-Won Lee (2017)

Wondwossen Gebreyes (2011)

Dean's Award for Creativity in Teaching

Armando Hoet (2018)

Rebecca Garabed (2016)

Eric Gordon (2012)

Linda Lord (2011)

William L. Ingalls Award for Exceptional Service

Linda Lord (2017)

Dr. Charles W. Fox Family Teaching Excellence Award

Eric Gordon (2018)

Excellence in Teaching Award

Eric Gordon (2013)

Cliff Monahan (2009)

College of Public Health Excellence in Teaching Award

Armando Hoet (2012)