

SPRING & SUMMER 2020

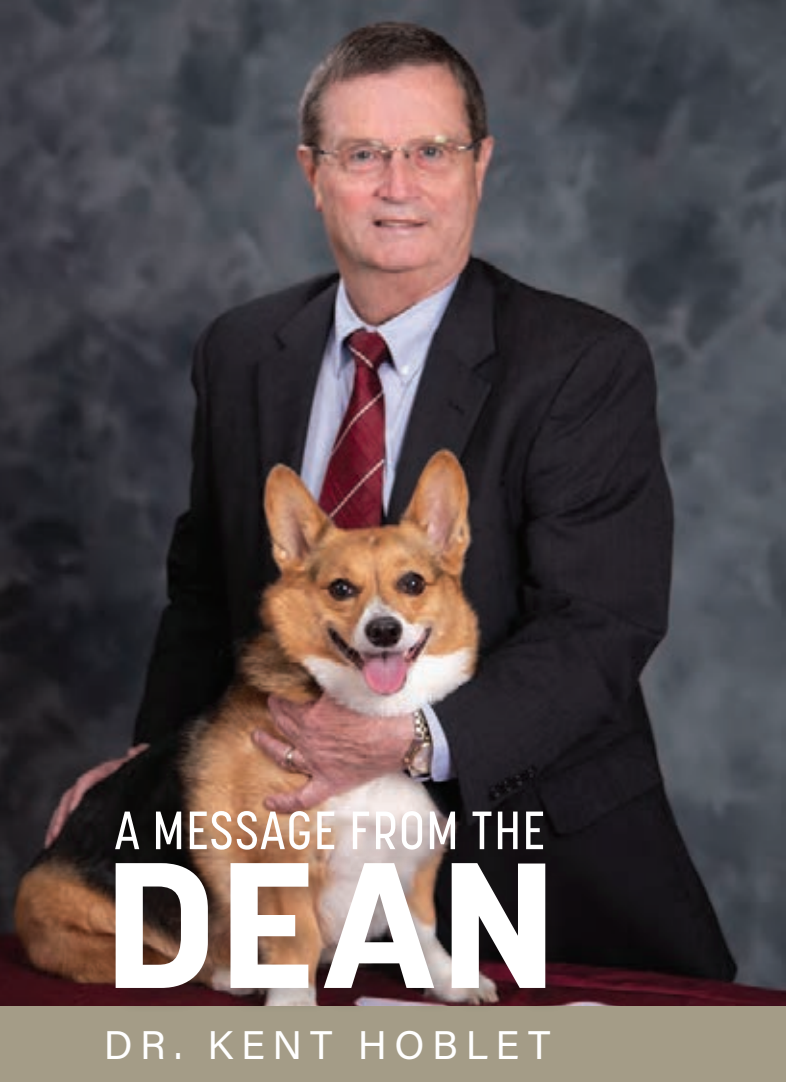
PEGASUS PRESS

MISSISSIPPI STATE UNIVERSITY • COLLEGE OF VETERINARY MEDICINE



MSU CVM RISES TO CHALLENGE,
CONTINUES TO FULFILL
MISSION DESPITE PANDEMIC

EARNING RESPECT BY EXCEEDING EXPECTATIONS



A MESSAGE FROM THE DEAN

DR. KENT HOBLET

This issue of the Pegasus Press will focus on the College's research mission. Teaching, Research and Service (clinical, diagnostic and outreach) are co-equal missions for a college of veterinary medicine that is part of a land grant university such as our own. I strongly believe that society benefits from these missions, and furthermore, that when functioning properly, these missions are also complementary within a college.

Since its early years, much of the College's core research emphasis has focused on meeting the needs of Mississippi's agricultural industries. Programs were initiated to investigate health challenges to the nation's largest aquaculture industry, infectious diseases of livestock and poultry, and the effect of legacy agricultural pesticides on animal and human health. This core work continues, but our programs have also grown to meet even more challenges.

In this issue of Pegasus Press you will learn how our aquatic animal health program, through its USAID-funded Fish Innovation Lab, is addressing global hunger, as well as the health of dolphins and critically endangered sea turtles on Mississippi's Gulf Coast.

Scientists associated with the CVM's MSU Center for Environmental Health Sciences continue to investigate the effects of environmental toxins on animal and human health. Read about their exciting work on the possible effects of environmental contaminants on atherosclerosis, obesity, diabetes, immunity, and brain development. Other work by CEHS faculty has led to discovery of a potentially brain-protecting antidote for use by our military against the effects of agents used in chemical warfare.

Research by several members of our faculty is directed toward diagnosis and control of infectious diseases in livestock, poultry, and fish, as well as to encourage more judicious use of antibiotics in these species. Coming out of work on infectious diseases has been very timely anti-viral findings related to the current COVID-19 pandemic from Dr. Keun Seok Seo's laboratory.

Research conducted by our clinician-scientists often springs from observations they make while treating animals in the hospital or in the field. Such is the case with Dr. "Chipper" Swiderski's research on a type of respiratory disease in horses which may, in fact, be a model to learn more about neutrophilic asthma in people.

Our faculty are committed to delivering a curriculum that is research-based. Our goal is that every graduate of MSU CVM will understand the basics of conducting and interpreting good research and then use these skills throughout their careers. A special part of our professional curriculum is the Summer Research Experience, which has provided faculty-mentored research experiences for 324 veterinary students since its inception.

Many other topics are covered in this issue. I would be remiss if I did not mention how our faculty, staff, students, alumni, friends of the college, and University administration have performed during the current pandemic. Our faculty and staff have continued to provide patient care, diagnostic services, conduct essential research and teach. In March, when we relieved students from their mandatory clinical responsibilities, more than 50 students volunteered to assist with patient care. Graduation ceremonies were conducted virtually, and the new first-year class (Class of 2024) began their new curriculum on time!

Please enjoy this issue of the *Pegasus Press*. And as always, be sure to give us a call if you have questions or suggestions.

Dr. Kent Hoblet

Dean & Professor | CVM Office of the Dean | (662) 325-1131



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COVER PHOTOS

FRONT: MSU Mascot Bully XXI, "Jak," sports his favorite mask in the MSU CVM Dean's lobby.

BACK: MSU CVM DVM students Catlyn Harris, Cassandra Barber, and Caleb Glover recently completed the College's 12-week, NIH-funded Summer Research Experience.

CONTENTS

SEO ANTI-VIRAL RESEARCH SHOWS PROMISE

p. 10



COLLEGE PUSHES FORWARD TO FULFILL MISSION DESPITE PANDEMIC

p. 2



DONATION EXPANDS EFFORTS TO SAFELY SHELTER PETS IN CRISIS

p. 18



COLLEGE EXPANDS & UPGRADES RECRUITMENT & ADMISSIONS

p. 34



MSU CVM CEHS CONDUCTING PROJECTS WITH GLOBAL IMPACTS

p. 16



SWIDERSKI RESEARCH HOLDS PROMISE FOR HORSE & HUMAN ASTHMA

p. 38



MVRDLS REMAINS FULLY FUNCTIONAL

p. 4

- p. 6 Meet the Faculty
- p. 9 Austin Retires | Brookshire Named Young Veterinarian of the Year
- p. 12 MSU CVM Researchers Honored
- p. 13 VBMA Officers Honored with National Award
- p. 14 CVM Alums Embrace Careers to Make Life-long Difference
- p. 19 We Rate Dogs
- p. 20 Navigating the New Normal: Strategies for Coping with Change
- p. 21 Undergrad Researchers Excel in CVM Research Activities | Guatemalan Neurologist Visits CVM Neuro Services
- p. 22 Khaitso Honored with Fulbright Scholar Award | Nichols Named to Graduate Student Hall of Fame
- p. 23 Boudreaux Named Associate Dean at LSU SVM | Archey Selected to ISOHA Executive Committee
- p. 24 Alums Embrace Careers in Laboratory Animal Medicine

ALTERNATIVE CELEBRATIONS FOR DVM CLASS OF 2020

p. 30

- p. 26 Fish Innovation Lab Completes Quick Start Projects
- p. 28 MSU CVM Summer Research Experience Inspires Future Researchers
- p. 31 Members of CVM Class of 2020 Honored at Virtual Awards Banquet
- p. 32 VMT Program Graduates Thirty-one in Class of 2020
- p. 33 Nash Named Alumnus of the Year | Chisholm Receives Food Animal Incentive Award
- p. 36 Class of 2024 Arrives and Set to Excel Despite Pandemic
- p. 37 Fourteen First-Year Students Named Bardsley Scholars | Burt Named to New Assistant Dean for Clinical Services Role
- p. 40 CVM Faculty Researches Dolphin and Sea Turtle Health
- p. 41 2020 Scholarships & Recipients
- p. 43 Grants and Contracts Awarded to CVM Faculty
- p. 44 Calendar of Events | CVM Notes & News
- p. 45 CVM Office of Development News

DEAN'S COUNCIL MEETS VIRTUALLY as Result of Pandemic

The MSU CVM Dean's Council has continued to fulfill its duties of providing vision and direction as well as assisting with student recruitment and serving as advocates for the College despite the COVID-19 pandemic.

Although the Council was unable to meet in person for its spring session, MSU CVM Dean Kent Hoblet corresponded with the group following the conclusion of the semester to bring them up-to-date on the College's ongoing operations despite the pandemic. This included how students completed classes, the success of "virtual" awards program and hooding ceremonies for the DVM class of 2020, completion of the admissions cycle, and preparation and planning for arrival of the DVM Class of 2024 in late June, as well as the subsequent return of second-, third-, and fourth-year students.

The Dean also hosted a WebEx virtual meeting for the Council to provide a follow-up report and answer any questions regarding the arrival of new students and successful start to the semester, as well as to keep the Council abreast of the ongoing measures in place to ensure the health and safety of CVM students, faculty and staff. The Council was also informed of current and potential modifications to the curriculum, new faculty roles and responsibilities, and preparation for the upcoming Council on Education site visit, as well as given an overview of the anticipated fall semester timeline.

The Council plans to meet again virtually for their routine fall session and hopes to resume regular onsite meetings with their spring 2021 session, pending the status of the pandemic at that time.

DEAN'S COUNCIL MEMBER SPOTLIGHTS



Dr. Michael Johnson is one of the founding partners of Baleen Process Solutions. BPS is an entrepreneurial water treatment company that provides innovative solutions to its oil and gas customers. Dr. Johnson holds five patents and has experience in the water treatment industry. He started his career as an aquatic veterinarian developing water filtration systems for catfish farms before founding Gulf States Environmental Solutions, LLC. As president and owner, he made his mark by developing an innovative way of treating flow-backs; he excels in solving complex water challenges. Dr. Johnson received his DVM from The Ohio State University in 1985. In 1989, he received an MS with an emphasis on catfish aquaculture and immunology from MSU. He was a member of the MSU CVM faculty from 1989-1994 and was named the College's Alumni Fellow in 2016.



Mrs. Lauran Wingo graduated from Mississippi University for Women in 1970 with a degree in history and began her teaching career at Germantown Middle School where she taught math while pursuing a master's degree at the University of Memphis in guidance and counseling. She later earned a doctorate at the University of Memphis in curriculum and instruction and completed her dissertation on learning styles and academic achievement. After the birth of her daughter, Lauran retired from teaching and became an active volunteer, tutoring in the inner-city Memphis school system and through the years serving on the Town Beautiful Commission, Community Foundation of Collierville, and Leadership Collierville.



Dr. Todd Henderson obtained a BS in animal science in 1988 from the University of Maryland, College Park, and a DVM in 1992 from Mississippi State University. He is the president and CEO of Nutramax Laboratories, Inc., a company that researches and develops nutritional supplements for animals and people. Dr. Henderson was the 2003 MSU CVM Alumni Fellow and the recipient of the 2015 President's Pegasus Award. He was also the College's 2018 Alumnus of the Year. Nutramax Laboratories Veterinary Sciences, Inc., established the Paul Farmer Memorial and Nutramax Laboratories Student Travel Support Endowed Fund at MSU CVM and renovated and named the Animal Health Center Pharmacy the Nutramax Laboratories Veterinary Sciences, Inc. Pharmacy in 2019. Nutramax is also a CVM Research Day Sponsor and a partner in the CVM's Summer Research Experience program.



COLLEGE PUSHES FORWARD to Fulfill Mission Despite Pandemic

MSU CVM has continued to fulfill its primary responsibility of educating those entering the field of veterinary medicine, as well as to provide essential services during the COVID-19 pandemic to ensure that veterinary care is available to agricultural and companion animals. Throughout this process, the College has adhered to Center for Disease Control, Mississippi Department of Health, Mississippi Board of Veterinary Medicine, Mississippi Governor's Office, and the University's guidelines to maximize the safety of faculty, staff, students, clients, and patients.

In the final weeks of the spring semester, all DVM and VMT lecture courses and labs were converted to online instruction. Clinic rotations were conducted by faculty and staff with the assistance of student volunteers. Clinic rounds were conducted virtually. These modifications enabled continued learning while protecting the health and well-being of students, faculty, and staff. At the same time, both the Animal Health Center (AHC), located in the Wise Center on the CVM campus, and the Animal Emergency & Referral Center (AERC), located in the Jackson suburb of Flowood, remained open but began accepting only emergency and essential cases.

The Mississippi Veterinary Research & Diagnostic Laboratory System, a group of four laboratories operated by MSU CVM, has remained fully functional throughout the pandemic, rendering vital services for veterinarians, individual producers, pet owners, and the livestock, aquaculture, and poultry industries throughout the state.

MSU CVM also graduated 86 new doctors of veterinary medicine and 31 new veterinary medical technologists and made it a point to publicly honor the graduates with pre-recorded events. The annual DVM awards program and class commencement ceremonies were

live streamed by the University Television Center, and the videos, along with graduate bios, are currently available through links on the MSU CVM website, vetmed.msstate.edu.

"We are proud of these classes for the obstacles they overcame to complete their degrees and realize the dreams they had worked so hard for so many years to reach," MSU CVM Dean Dr. Kent Hoblet said. "We know they are entering the field well-prepared to meet needs in our ever-changing world."

In addition to continuing to provide essential services for animals, successfully completing the semester and officially celebrating graduates, as the pandemic escalated, the College also worked with local, state, and national leaders to do its part to help ensure the best possible outcomes for not only animals, but people.

"Early on, we were in touch with the appropriate agencies and physicians and emergency preparedness representatives at the University of Mississippi Medical Center (UMMC) in Jackson, Longest Student Health Center (LSHC) on the MSU Campus, and OCH Regional Medical Center (OCH RMC) in Starkville, regarding our ability to assist in their efforts to care for the public should they find themselves in need of additional resources and personnel," MSU CVM Associate Dean for Administration Dr. Ron McLaughlin said. "We donated personal protective equipment and medical supplies to LSHC and loaned the only two ventilators we have that are suitable for human use to OCH."

As the weeks passed, College leaders continued to meet regularly with University officials and other veterinary colleges around the country via teleconference to ensure everything possible was being done to create a safe learning and working environment at CVM locations on a day-to-day basis, as well as to prepare for



the arrival of new students in June and the return of second-year students in July.

“As always, the safety and security of the CVM family remains at the forefront of our endeavors. By staying abreast of the latest CDC and AVMA recommendations and seeking guidance specific to MSU CVM from the College’s specially formed COVID-19 task force, we are doing all we can to create a safe learning and working environment,” Dr. Hoblet said. “The pandemic has required us to make many changes related to how we staff and operate our animal hospitals and clinics, as well as how and where we deliver instruction to students; however, with the commitment and hard work of our faculty and staff, we have risen to the challenge and been able to continue operations and instruction of the caliber expected at MSU CVM.”

Dr. Hoblet noted the AHC and AERC have gradually expanded their caseloads to return to full operations—albeit operations practiced within the guidelines of the “new normal.” Veterinary Specialty Center, another of the College’s clinics, which is located in west Starkville and was closed for a brief period, has also reopened under these guidelines as well.

Within CVM, efforts have been made to provide for social distancing, keeping the facilities sanitized, and other such measures known to reduce exposure to the COVID-19 virus. “Providing online learning opportunities has reduced the number of people in our buildings and the chances for exposure,

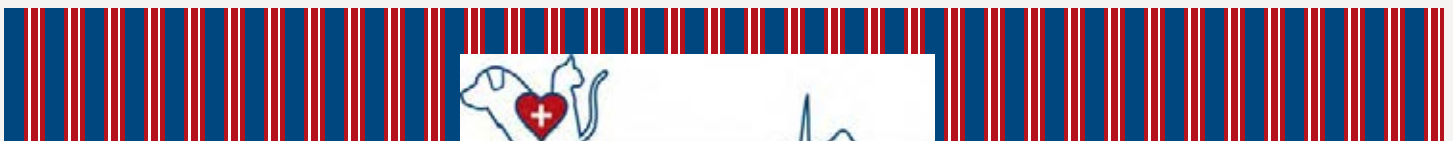
as has reducing the number of students, staff, and faculty in the clinics at the same time. Not permitting clients to accompany their animals in the building and allowing students, staff, and faculty to work remotely when necessary has helped,” Dr. Hoblet said, adding that other efforts taken to reduce risks have included increased frequency of cleaning in high-density areas, providing additional hand washing and hand sanitizing stations, and propping open doors where possible.

In addition, all faculty, staff, and students have been asked to self-monitor for symptoms of the virus and reduce risks daily, including staying home if they have a fever or feel ill, washing hands frequently and using hand sanitizer, maintaining social distance as much as possible, and always wearing a face covering or mask.

“We have taken measures to ensure that the CVM is not a place that increases the risk for COVID-19 exposure. Our goal is to ensure that each individual is in fact safer while in CVM facilities than they are elsewhere,” Dr. McLaughlin said.

“Our College remains focused on educating our students, advancing research, and providing diagnostic and specialty veterinary services. These key elements of our mission have not changed, but many aspects of how we accomplish them have,” Dr. Hoblet concluded. “As a provider of essential services, MSU CVM must continue to move forward during this unprecedented time.”

ALUM SENDS LETTER OF ENCOURAGEMENT AMID PANDEMIC



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April 24, 2020

Dear Students,

I want to check in with you to see how everyone is doing. These are strange times, greatly impacting group studies and socializing. Please don't let this time discourage you in any way; this will pass. Remember:

- You live in the best place imaginable on earth—Starkville, MS. Forget politics, skin color, fraternities, social classes, etc. Mississippi State is like family. You have professors that genuinely care who you are and how you're doing. You're not just a number to them.
- Those of us that have gone before you are still here for you now. Do you need to talk? Struggling with a class? Reach out—we're here for you, too.
- You are a Mississippi State Veterinary student. Go Bulldogs! You will graduate and be better prepared for surgery as well working up cases than veterinary students from other colleges!

It can be difficult to remain positive when news outlets are reporting gloom and doom, but if you will look beyond this, you will find kindness, honesty, laughter and many other positive aspects of this life. My wish is for you to be filled with hope and excitement for your future. Please stay well and take care of yourselves. We will be praying for each and every one of you.

Taylor D. Lyne, DVM

Owner/Veterinarian-In-Charge Lyne Animal Hospitals / MSU CVM Alumni Fellow 2019



MVRDLS REMAINS FULLY FUNCTIONAL During Pandemic

The COVID-19 pandemic has put a significant damper on “business as usual” for the vast majority of businesses in our state, including many deemed “essential” during this unprecedented time. However, as others have struggled to maintain staffing and operations, the Mississippi Veterinary Research and Diagnostic Laboratory System (MVRDLS) has risen to the challenge, continuing to provide much-needed surveillance and diagnostic testing for practicing veterinarians, individual producers, pet owners, and the livestock, aquaculture, and poultry industries throughout the state.

Located in three geographic sites and operated by MSU CVM, the MVRDLS includes a total of four laboratories: the Mississippi Veterinary Research and Diagnostic Laboratory (MVRDL) and the Poultry Research and Diagnostic Laboratory (PRDL), both of which are located in Pearl; the Aquaculture Research and Diagnostic Laboratory (ARDL) located in Stoneville; and the CVM Diagnostic and Aquatic Laboratory (DAL) housed in the Wise Center on the College’s main campus in Starkville. The labs are staffed with veterinarians, technicians, research scientists, and support staff committed to protecting the health of animals, people, and our state’s vital agricultural economy.

According to Dr. Lanny Pace, executive director of MVRDLS, the dedication and teamwork of the laboratory employees have surpassed his expectations during what has become

the country’s largest health crisis in the last one hundred years. “I’ve known for a long time that our staff is completely committed to meeting the needs of those we serve across our state, but as I began preparing an annual comparison report of the number of tests conducted on laboratory submissions from farm animal species, it just became all the more obvious,” Dr. Pace said.

And, if numbers truly don’t lie, Dr. Pace’s assessment of his team is correct. According to the report, the laboratory system performed a similar number of tests and services this year as in the previous year despite the ongoing pandemic. In a year-to-year comparison, test numbers for March 1–May 31, 2020, on samples from food animal and equine species were 93,090 tests completed, which, even with the restrictions in place because of COVID-19, is 96% of the number of tests completed for the same time period in 2019.

“These numbers are quite impressive to say the least,” MSU CVM Dean Dr. Kent Hoblet said. “Keep in mind, the labs had to modify operations to allow for the recommended social distancing and other such precautions put in place by the CDC. They alternated work shifts, adjusted procedures, and made other necessary accommodations to ensure workplace safety, yet still managed to perform at or above expected testing capacity. This clearly reflects their commitment to what they do.”

I am very proud of the work the faculty and staff of our diagnostic laboratory system have continued to do... They give extra meaning to 'essential' personnel.

— DR. KENT HOBLET

Dr. Pace said the fact that the MVRDLS is the state's only laboratory with approval to run government-required surveillance and regulatory tests for domestic and food animals, including those tests that are required before the harvest, sale, or shipping of food-animal products, illustrates the importance of the system continuing to function at full capacity despite any challenges. "Folks are counting on us to do our job so they can do theirs," he said. "Even though we do a high volume of regulatory tests, the diagnostic tests we provide are equally as important. They help producers, veterinarians, and industry make decisions about treatment and vaccination programs."

In addition, Dr. Danny Magee, poultry diagnostic lab director, noted that the number of tests conducted by the PRDL was actually on pace to exceed last year's total until mid-April. "We suspect the devastation to the poultry industry caused by the two EF4 tornadoes that struck so many poultry houses in the state on Easter Sunday impacted our final totals. Also, about this same time, COVID-19 apparently impacted the ability of some processing plants to fully staff their workforces—which in turn affects their ability to process the usual number of birds—so that would ultimately affect our numbers as well."

The ARDL, which works predominantly with the state's aquaculture industry, experienced an increased caseload compared to last year, as did the CVM DAL, despite the fact it and the CVM Animal Health Center were only accepting emergency and essential cases as a result of the pandemic during the last several weeks of data collection.

"The services we provide are vital to the people in our state and to our state's economy, and we are proud to be charged with this important responsibility and to meet it, despite the COVID-19 crisis," Dr. Pace said.

Dr. Hoblet added, "I am very proud of the work the faculty and staff of our diagnostic laboratory system have continued to do—and do very well—during a time when many people have been reluctant to go to work. They continue to do their part to keep food coming to the rest of us from Mississippi farms, and they have done this without fanfare. They give extra meaning to 'essential' personnel."



MEET the FACULTY



DR. WENDY BYRD

Assistant Clinical Professor, Animal Emergency & Referral Center

Dr. Wendy Byrd, who has served as the certified canine rehabilitation therapist at the Animal Emergency & Referral Center (AERC) Animal Rehabilitation Center in Flowood since 2018, officially joined the MSU CVM family as an assistant clinical professor at the AERC in May. Dr. Byrd received her DVM from MSU CVM in 2008 before earning her canine rehabilitation certification from the Canine Rehabilitation Institute in 2018.



DR. LESLIE CHARLES

Assistant Clinical Professor, Department of Pathobiology and Population Medicine

Dr. Leslie Charles joined MSU CVM as an assistant clinical professor in the department of pathobiology and population medicine in February. Previously, Dr. Charles served as an associate veterinarian at Lake Mary Veterinary Clinic in Lake Mary, Florida. She received her DVM from the University of Florida in 2010 before completing both an internship and residency there in 2011 and 2016, respectively. Dr. Charles is a diplomate of the American College of Veterinary Pathologists.



DR. KRISTIE CHAVEZ

Assistant Clinical Professor, Department of Clinical Sciences

Dr. Kristie Chavez received her DVM from MSU CVM in 2007 before spending 12 years in general practice and emergency medicine at Horn Lake Animal Hospital in Horn Lake. She returned to the College as an assistant clinical professor in emergency medicine in March.



DR. MICHAEL GOWEN

Assistant Clinical Professor, Animal Emergency & Referral Center

Dr. Mike Gowen officially joined the MSU CVM faculty in May as an assistant clinical professor in emergency medicine. Dr. Gowen earned his DVM from MSU CVM in 1995 and has been working at the Animal Emergency & Referral Center in Flowood since 2010.



DR. CLAY IVEY

Assistant Clinical Professor, Animal Emergency & Referral Center

Dr. Clay Ivey officially joined the MSU CVM faculty in May as an assistant clinical professor in emergency medicine. Dr. Ivey is a 2016 graduate of MSU CVM. After graduation, Dr. Ivey completed a rotating small animal internship at MSU CVM and has been working as an emergency clinician and adjunct professor at the Animal Emergency & Referral Center in Flowood since 2017.



DR. TRACY JAFFE

Clinical Instructor, Community Veterinary Services

Dr. Tracy Jaffe joined the MSU CVM faculty in March as a clinical instructor in community veterinary medicine. Dr. Jaffe earned her DVM from the University of Missouri College of Veterinary Medicine in 1990. Dr. Jaffe comes to MSU CVM from Islands Animal Clinic in Gilbert, Arizona.



DR. ALEX SHEALY

Clinical Instructor, Department of Clinical Sciences

A 2020 graduate of MSU CVM, Dr. Alex Shealy joined the MSU CVM faculty as a clinical instructor in shelter medicine following graduation. Dr. Shealy also holds a Bachelor of Science from MSU in biological sciences.



DR. REBECCA WATKINS

Assistant Clinical Professor, Department of Clinical Sciences

Dr. Rebecca Watkins joined the MSU CVM family in March as an assistant clinical professor in emergency medicine. Dr. Watkins was previously an associate veterinarian in small animal general practice and emergency medicine at VCA Ragland and Riley Animal Hospital in Livingston, Tennessee. She earned her DVM from MSU CVM in 2008.



DR. JOSHLYN WINSTEAD

Clinical Instructor, Animal Emergency & Referral Center

A 2020 graduate of MSU CVM, Dr. Joshlyn Winstead joined the MSU CVM faculty as a clinical instructor in emergency medicine following graduation. Dr. Winstead also holds a Bachelor of Science from MSU in biomedical engineering. She works at the Animal Emergency & Referral Center in Flowood.

EMPLOYEES OF THE MONTH



CUSTODIAL SERVICES

The entire MSU CVM Custodial staff was honored in May for their outstanding, team effort during the ongoing COVID-19 pandemic. “Our custodial team has gone—and continues to go—above and beyond the call of duty to ensure that our facilities are clean, disinfected and a safe place for our CVM family,” MSU CVM Dean Kent Hoblet said. “We are thankful for the top-notch services they provide and for their commitment to their duties every day, especially during this time of unprecedented need for cleanliness and infection control.”

Dr. Joey Burt, who oversees the custodial department, said that like most others at the beginning of the pandemic, the custodial staff was initially quite concerned about exposure to and infection from the COVID-19 virus. However, after being educated about the disease and its transmission, as well as trained on proper disinfection techniques, they faced the task of keeping the Wise Center clean and safe with confidence.

“I would say our custodial staff has literally made it their mission to ensure the cleanliness and safety of the CVM so fellow personnel could safely continue to provide teaching and clinical services and complete

their duties,” Dr. Burt said. “Although they were needed to work in-person while many others were working remotely, they never faltered in their responsibilities. They have truly provided an ESSENTIAL service and are committed to continuing to do so as we move through this pandemic.”

MSU CVM Associate Dean for Administration Dr. Ron McLaughlin said the CVM custodial staff deserves to be “Employees of the Month” every month, but their hard work and dedication have been especially important during the pandemic.

“Our custodians continue to work tirelessly to disinfect our facility several times each day so that we can continue to provide essential care to patients, serve our clients, and teach students. It’s comforting to know they are putting in this effort so we can all be safer. I am really proud of them and appreciate all they do for us every day,” Dr. McLaughlin said.

As the College prepared to welcome a new class of first-year students in late June, as well as welcome back the upperclassmen in subsequent weeks, the importance of cleanliness and disinfection of the facilities was a key focus. According to Dr. Jack Smith, associate dean for academic and student affairs, the custodial staff’s increased and continuing efforts to perform their jobs well have been vital to the College’s ability to continue to educate and train students.

“The custodial staff members have truly been the foot soldiers in our effort to ensure we are providing as safe and clean an environment as possible for the safety of our students and everyone else in the CVM,” Dr. Smith said. “Their hard work has not gone unnoticed, and they are more than worthy of this recognition!”



BRITTANY ADAMS

Brittany Adams has served as an ICU and ER veterinary technician for the past three years. Her duties consist of providing hourly care to critical and non-critical patients—from hourly respiratory rates, to administering medication, to feeding and walking. Before becoming a member of the CVM family, Adams worked at a rural mixed-practice facility for about 6 years. Adams says that there are many things she loves about her job such as patient care, teaching, and learning new things. “One of the biggest things for me, though, is to watch a patient that came in on their worst day leave the ICU and return home with their loving family. Knowing I had a helping hand in that makes me love my job so much more.” When she isn’t work, Adams enjoys gardening, crocheting, hiking, and furthering

her education in the field of veterinary medicine.

AUSTIN RETIRES



Dr. Frank Austin, professor in the department of pathobiology and population medicine, has retired after 31 years. Dr. Austin came to MSU CVM in 1989 after working at the Louisiana State University School of Veterinary Medicine as a diagnostic microbiologist. Throughout his 31 years at MSU CVM, Dr. Austin taught nearly every student to come through the DVM program and served as mentor to many. He endowed the Dr. Frank Austin and Class of 2012 Endowed Scholarship. MSU CVM greatly appreciates Dr. Austin’s many years of dedicated service and wishes him the very best in the years to come!



BROOKSHIRE NAMED MVMA YOUNG VETERINARIAN OF YEAR



MSU CVM Assistant Clinical Professor of One Health and Shelter Medicine Dr. Cooper Brookshire of the department of clinical sciences was named the 2020 recipient of the Young Veterinarian of the Year award by the Mississippi Veterinary Medical Association (MVMA). The award was presented at the MVMA’s Winter Conference in February.

Dr. Brookshire earned his DVM from MSU CVM in 2010 and also holds a Bachelor of Science in animal and dairy science and a Master of Science in veterinary medical science with emphasis in population medicine from MSU.

An active member of the College’s Shelter Medicine Team, Dr. Brookshire also works with the community veterinary services and population medicine services. He has special interest in epidemiology, preventive medicine, and antimicrobial resistance, and holds board certification in both preventive medicine and epidemiology as a Diplomate of the American College of Veterinary Preventive Medicine.

To be considered for the MVMA Young Veterinarian award, a practitioner must be a current MVMA member, have graduated within the last eight to 10 years, be 40 years of age or younger, and have demonstrated activity that has promoted and enhanced veterinary medicine within the state.

According to Dr. Andrew Mackin, Department of Clinical Services head, who helped nominate Dr. Brookshire for the award, Dr. Brookshire very enthusiastically pursues opportunities to learn, teach, and serve and is an outstanding ambassador for MSU CVM at both the state and national level.

“Cooper is a busy, keen, and highly collegial young veterinarian who is already highly successful in multiple areas. He is actively involved with the MVMA, AVMA, ACVPM, and ACVIM, serving on several committees and as an invited speaker at association meetings,” Dr. Mackin said. “In addition, Cooper is an active scientist, serving as principal investigator, co-investigator, or co-project director on a variety of different grants and projects in the areas of epidemiology, antibiotic stewardship, and diagnostic testing. I have no doubt he will continue to take on ambitious teaching, continuing education, research, and service roles, and I fully expect him to be a leader in the profession over the next few decades.”



SEO ANTI-VIRAL RESEARCH SHOWS PROMISE

Doing their part to develop and test scientific responses to the COVID-19 pandemic, researchers in the MSU CVM Department of Basic Sciences have made significant discoveries in destroying a strain of feline coronavirus. Under the leadership of Dr. Keun Seok Seo, an associate professor of microbiology, the research reveals that the substances studied effectively kill the coronavirus that causes feline infectious peritonitis (FIP), an incurable viral disease occurring in wild and domestic cats.

According to MSU CVM Interim Associate Dean for Research and Graduate Studies Dr. Steve Pruett, scientists have been stimulated by the COVID-19 pandemic to develop and test methods and materials that have anti-viral activity, and Dr. Seo and his laboratory personnel have become integral to the development of some exciting new products. Dr. Pruett said Dr. Seo and a post-doctoral researcher in his lab, Dr. Nogi Park, are using the FIP coronavirus to test some interesting new products for their ability to kill coronaviruses.

Dr. Pruett explained that to grow concentrated suspensions of particles of the novel coronavirus (SARS-CoV-2) that causes COVID-19, the work must be conducted in a biosafety level three (BSL-3) laboratory, and although the College has a BSL-3 modular laboratory, the steps required to get it approved for working with SARS-CoV-2 are daunting and not yet completed. Therefore, Dr. Seo decided to use the feline coronavirus which requires only a

biosafety level two (BSL-2) laboratory that is considerably easier to get approved.

“The anti-viral materials and methods Dr. Seo is investigating are thought to work by non-specific physical mechanisms like oxidation or electric charge interactions,” Dr. Pruett said. “Because all coronaviruses are quite similar in size, shape, and physical properties, there’s a good possibility the anti-viral products tested will inactivate SARS-CoV-2 with a very similar level of effectiveness as they kill feline coronavirus.”

According to Dr. Pruett, Dr. Seo and a group of researchers are developing a multi-purpose material called biochar that although not initially developed with SARS-CoV-2 in mind, is now being evaluated for its potential effects on this virus and on coronaviruses in general.

Providing a layman’s explanation of this work, Dr. Seo said, “In an initial experiment, I poured a concentrated suspension of feline coronavirus over a small column containing biochar and then tested the liquid that passed over the column, detecting no feline coronavirus after a brief period of time. I did a standard assay for functional virus particles called a plaque-forming unit (PFU) assay.”

“To perform this assay, feline cells were grown in culture until they covered the entire surface of a plastic culture plate with six

identical wells. The virus suspension was then added to each well at different dilutions. After a few minutes, a soft-agar solution was added to the wells, forming a semi-solid layer that prevented viruses from spreading from one cell to cells at distant locations in the well,” Dr. Seo continued. “After 48 hours, clear zones—which are called plaques—represent areas where all the cells were killed by viruses.”

Dr. Seo explained that each plaque originated from a single virus particle; therefore, the number of plaques equals the number of virus particles in the volume of suspension added to the well. “The results of such a test were dramatic in the case of biochar. The original sample resulted in many plaques, but after passing through biochar, no plaques were visible,” he said.

Dr. Seo’s laboratory also led the preliminary testing on feline coronavirus that involved a 100% all-natural chitosan material, marketed as BacShield RTU®, being applied to surfaces contaminated with the FIP coronavirus. In this study, which was conducted similarly to the biochar study using a standard PFU assay, within 30 minutes, 99.9% of the virus was destroyed, and within 60 minutes, 100% of the virus was destroyed.

Dr. Seo and his research team have had significant experience with testing the antimicrobial effect of chitosan. His team demonstrated that the chitosan, applied to surfaces forms an invisible clear film, that not only destroys “superbugs”—including methicillin resistant *Staphylococcus aureus* (MRSA), carbapenem resistant *Enterobacteriaceae* (CRE), *Pseudomonas aeruginosa*, and other drug-resistant pathogens—but also provides a window of lasting protection for days and even months after application.

Yet another important development related to helping eradicate the novel coronavirus in Dr. Seo’s lab has led to a provisional patent application by Drs. Seo, Nogi Park, and Joo Youn Park. The product is a test kit for neutralizing antibodies specific for SARS-CoV-2.

According to Dr. Seo, when people acquire a COVID-19 infection—or when they are given an injection of one of the vaccines currently being developed—they produce antibodies which are proteins that bind to the virus. However, not all antibodies protect a person from getting an infection; the antibodies need to be specific for the portion of the SARS-CoV-2 spike protein which binds to a protein on human cell surfaces called angiotensin converting enzyme-2 (ACE-2). He said if the antibody binds tightly enough to the virus and blocks the interaction of the virus with ACE-2, it prevents the virus from being able to initiate infection.



“The assay Dr. Park and I developed for this is a lateral flow assay. It works in a similar way as home pregnancy tests, except that after adding a patient’s blood or serum, the formation of a visible line in one location would indicate neutralizing antibody, and formation of a line at a different location would indicate that there is not enough neutralizing antibody (or it binds too weakly) to be effective,” Dr. Seo explained, noting a line at a third location would occur in every test and would indicate that the kit is working properly.

Dr. Pruett said the design of this kit involves the construction of two unique chimeric proteins designed by the MSU researchers specifically for this purpose. If the kit works as expected, it will be particularly useful to determine how long the protection from COVID-19 lasts following a natural infection or following vaccination.

“This assay can be performed in a non-laboratory setting by someone who is not trained to perform clinical assays, and it provides a definite answer in about 30 minutes,” Dr. Pruett said. “I encouraged Dr. Seo to get patent protection and to seek to develop the product as quickly as possible, as this is one of most clever and exciting products I have ever seen. We are fortunate to have scientists of this caliber at MSU CVM.”

MSU CVM Dean Dr. Kent Hoblet added, “MSU CVM is extremely proud of this dedicated research team that has worked diligently to develop and test substances that could help the country safely return to work and once again feel comfortable spending time with others. They have done an outstanding job, and their work holds much promise.”

“...if this material kills coronavirus shortly after contact, the laborious, continual wiping or spraying of surfaces with disinfectant may no longer be necessary.”

— DR. KEUN SEOK SEO

MSU CVM RESEARCHERS HONORED

Several MSU CVM research scientists were recently honored for their work by the MSU Office of Research and Economic Development (ORED) and the Division of Agriculture, Forestry and Veterinary Medicine (DAFVM). The annual awards are presented each spring as part of a celebration to recognize faculty, staff, and students from each of MSU's academic colleges along with the University's research administration, centers, and institutes. This year's honorees at CVM include Dr. Trey Howell, Dr. Edward Meek, Dr. Brittany Szafran, and Hannah Scheaffer. Dr. Stephen Pruett and Dr. Frank Austin were also recognized.



Faculty honoree **Dr. Trey Howell** is an associate professor in the department of basic sciences. His lab is in the MSU CVM Center for Environmental Health Sciences (CEHS), and the primary focus of his research is examining the link between environmental exposure to pesticides and the pathogenesis of obesity and type 2 diabetes with a focus on systemic metabolism and diabetic sequelae such as impaired wound healing. His research is

extramurally funded by grants from the National Institute for Environmental Health Sciences of the National Institutes of Health (NIH).

A 2000 MSU microbiology graduate, Dr. Howell completed his PhD in pharmacology and toxicology at the University of Mississippi Medical Center. After earning his PhD, he completed a postdoctoral fellowship in the department of pharmacology at the University of Tennessee Health Sciences Center before returning to MSU and joining the CEHS in 2009. He is an active member of the Society of Toxicology, where he holds the elected position of councilor in the south-central chapter.



Dr. Edward Meek, this year's research support honoree, is a research scientist in the department of basic sciences who works in the CEHS. Dr. Meek's research is predominantly in the area of neurotoxicology, focusing on the effects of organophosphates such as insecticides and nerve agents used in chemical warfare. He and his mentor, Dr. Janice Chambers, are currently focused on the development of novel oxime therapies to prevent the neurological damage caused by organophosphates.

Dr. Meek completed his PhD in environmental toxicology in 2018 while working as the CEHS laboratory manager after earning his BS in biological sciences and MS in veterinary medical sciences at MSU. A co-investigator on two NIH grants targeting novel oxime therapies for organophosphate exposure, he has co-authored more than twenty journal articles and book chapters and is a co-recipient of an oxime patent. In 2007, Dr. Meek was recognized with the MSU CVM Research Support Staff Award, and he completed the MSU

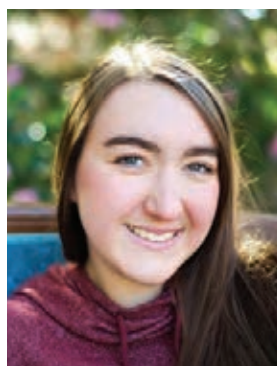
Leadership Excellence for Accomplished Professionals (LEAP) program in 2012.



Dr. Brittany Szafran, a combined degree student who completed her DVM in May of 2017 and is now a doctoral candidate in environmental toxicology, is this year's graduate student honoree. Her research focuses on the effects of the organophosphate pesticide chlorpyrifos on endocannabinoid metabolism, levels of lipid mediators, and immune function in murine lungs. She is working in

the laboratory of MSU CVM Associate Professor Dr. Barbara Kaplan. Additionally, Dr. Szafran has a publication identifying endocannabinoid metabolizing enzymes in the blood of humans with Huntington's disease produced in collaboration with the University of Rochester. She has also worked with researchers at Louisiana State University to study the immune effects of e-cigarette delivery vehicles.

Dr. Szafran, who earned the Roger McClellan Student Endowment Award and an Outstanding Graduate Student Leadership Award during a three-year stint as the student representative for the Comparative & Veterinary Specialty section within the Society of Toxicology, hopes to obtain a governmental post-doctoral position following graduation.



A junior biochemistry major, **Hannah Scheaffer** is this year's undergraduate student honoree. Scheaffer is from Ruston, Louisiana, and has conducted research focused on inflammation, prostaglandins, and the polarization of macrophages by inflammatory stimuli under the direction of MSU CVM Professor Dr. Matthew Ross for two years. She is an inaugural member of MSU's Phi Beta Kappa Honor Society and a provost scholar in the Judy and

Bobby Shackouls Honors College.

Scheaffer, who is interested in conducting cancer research, has been recognized by the south central conference of the Society of Toxicology twice and will spend 10 weeks conducting research at the University of Oxford this summer before returning to MSU this fall.

In addition to these four researchers, two other CVM scientists were recognized for their work. Dr. Stephen Pruett, associate dean for research and graduate studies, and Frank Austin, a recently retired professor in the department of pathobiology and population medicine, along with Dr. Shien Lu, a MAFES scientist in the department of biochemistry, molecular biology, entomology, and plant pathology, were awarded patents in 2019, as follows:



Stephen Pruett, jointly with Frank Austin and Shien Lu: “Occidiofungin Formulation and Uses Thereof.” This invention relates to therapeutic formulations comprising occidiofungin useful for treating cancer, and is licensed by Sano Chemicals, Inc.



Frank Austin, jointly with Shien Lu: “Occidiofungin, a Unique Antifungal Glycopeptide Produced by a Strain of *Burkholderia Contaminans*.” This invention is directed to novel antifungal glycopeptide compounds and salts thereof produced by a strain of *Burkholderia contaminans* useful for preventing or treating fungal infection or disease in animals and plants and the bacterial strain that produces the compounds.

All of these outstanding individuals would have been honored at a banquet hosted by ORED and DAFVM, but unfortunately, the COVID-19 pandemic caused this event—as it has scores of others—to be canceled.

“It’s disappointing that these talented scientists were not able to be celebrated and recognized in the presence of their peers; however, that in no way diminishes the tremendous impact they have had on our state, country, and across the world,” MSU CVM Dean Dr. Kent Hoblet said. “They have contributed to another record-breaking year of research at Mississippi State University, and we congratulate them for a job well done.”

VBMA OFFICERS HONORED WITH NATIONAL AWARD



In January, nine members of the MSU CVM chapter of the Veterinary Business Management Association (VBMA) traveled to the VBMA National Meeting in Orlando, Florida, where they learned how to best support members and how to better implement a quality business education outside of the classroom. Additionally, they were able to network with established veterinarians, who were present and willing to give invaluable advice about their future careers.

This year’s VBMA National Meeting was special in that the MSU chapter returned to Starkville with the inaugural 2019

Communication Excellence award due to the work done by officers Elizabeth Czapor, Lauren Scott, Mimi Pelanne, Andrea Rodriguez, and Kristen Williams this semester. This was the only award of this type presented.

The students were nominated for this award by their regional leader and chosen out of all 34 accredited veterinary colleges in the US and Caribbean. They were selected based on success in keeping the association members, regional leader, and national leaders updated efficiently, while also putting forth tremendous effort in helping leaders via various forms of communication such as email, text, phone calls, Facebook, and other such methods.

According to MSU chapter advisor Dr. Joey Burt, these officers went above and beyond to ensure that communication within the chapter as well as among its many target audiences was organized, timely, and efficient. “VBMA is a wonderful organization that provides our students essential skills that are the groundwork for solid business careers throughout their professional veterinary life. These attributes allow graduates to immediately impact not only their personal financial success but also the success of the practices they join,” he said. “These officers have done an outstanding job for our chapter and are destined to excel in their careers.”

CVM ALUMS EMBRACE RESEARCH CAREERS TO MAKE A LONG-TERM DIFFERENCE



Whether in a laboratory, a classroom, or working directly with animals in a clinical setting, MSU CVM Alumni are driven by a profound respect and deep love for animals of all kinds. Many students initially enter the DVM program with a desire to pursue private practice, while others enter considering a research path; however, it's often along the way that many realize a research focus is actually the right fit for them. Drs. Jim Nichols, Claire Fellman, and Courtney Hunter are all MSU CVM graduates who elected to focus on veterinary research to improve health for humans and animals alike.

DR. JIM NICHOLS (DVM 2016, PhD 2020), who graduated from the University of South Florida before completing the MSU CVM DVM-PhD program, was interested in a research career before coming to MSU. “During my undergraduate years, I caught the ‘research bug.’ I saw that I liked how the lab worked,” Dr. Nichols said. “I enjoyed tangibly seeing the numbers, and I liked being able to prove things. I felt like it was important to have a broad knowledge to apply to my research, so I realized that I wanted to go the DVM-PhD route.”

While pursuing his degrees, Dr. Nichols was mentored by Dr. Barbara Kaplan, an associate professor in the MSU CVM Department of Basic Sciences. “Dr. Kaplan was my primary mentor, but Dr. Mark Lawrence also helped guide me. I experienced a ‘community effort’ with a team of faculty who encouraged me to pursue research and new ideas,” he said. They allowed me to grow. As a student, I could approach any faculty member and get help.”

Helping students determine their path within the profession is an important role of those already practicing. “When I work

with students questioning whether to pursue research versus a clinical path, I share that most researchers have a different mindset. They want to know how the world works,” Dr. Nichols explained. “They see a problem, and they seek to know what the root of the problem is; they want to break down the mechanisms and pull it apart. Research allows you to do this.”

Research in veterinary medical science is critical to the protection of public health and the advancement of science that benefits both humans and animals. According to Dr. Nichols, the research he is conducting is changing the world of the future. “My work will help hundreds and thousands of people understand veterinary medicine better and use it to further medicine. Long-term, the work I do has the potential to save many lives, and that is what makes a day’s work worth it,” he said. “There may or may not be immediate accolades for researchers but knowing that research leads to developments is fulfilling.”

Dr. Nichol’s research on cannabidiol, potentially groundbreaking for multiple sclerosis, was presented at NIH’s first Veterinary Sciences Technology Colloquium in 2017. This year, he begins work as a post-doctoral researcher at MD Anderson Cancer Center, where his immediate focus will be examining the role of the immune system in neuropathic pain.

DR. CLAIRE FELLMAN (DVM 2011, PhD 2016) entered MSU CVM through the College’s Early Entry Program. She participated in the Summer Research Experience and was selected as a Morris Animal Foundation Veterinary Student Scholar.

“My work will help hundreds and thousands of people understand veterinary medicine better and use it to further medicine. Long-term, the work I do has the potential to save many lives, and that is what makes a day’s work worth it.”

– DR. JIM NICHOLS

"I knew early I was interested in internal medicine, so I asked Dr. Andrew Mackin if I could participate in research during the summer. I helped Dr. Todd Archer with his master's project developing biomarkers of cyclosporine's effects on T cells in dogs and continued work on the project for a second summer, ultimately writing a manuscript that was accepted for publication during my senior year," Dr. Fellman said. "Because of the success of the research, Dr. Mackin encouraged me to apply to the PhD program, which I joined in my fourth year. I continued taking classes and doing research as I pursued advanced clinical training at MSU with a rotating internship, followed by a residency in small animal internal medicine and veterinary clinical pharmacology."

Dr. Fellman said this training prepared her for a career in academia, and after graduation, she accepted a position as an assistant professor at Tufts University Cummings School of Veterinary Medicine in 2016 where she serves as a clinician in the internal medicine service.

Actively involved in a One Health collaboration with the Human Antimicrobial Stewardship Team at the Tufts Medical Center and clinicians at the Foster Hospital for Small Animals, Dr. Fellman divides her time between seeing patients, teaching students on clinics, teaching medicine and pharmacology courses, mentoring residents, and doing research.

"My research has largely shifted to using my pharmacology training to help improve antimicrobial stewardship in small animal patients. I am working on a project assessing the fecal resistance profiles of dogs and their human owners when the dogs were treated with antimicrobials and identified shared antimicrobial resistance elements," she said. "We have been working to develop automated ways to measure antimicrobial use in veterinary patients to establish benchmarks and be able to assess the effects of stewardship interventions. Our long-term goal is to be able to collect antimicrobial use data from a variety of hospital settings to allow clinicians to compare their prescribing with similar hospitals to identify areas to target stewardship interventions."



Antimicrobial resistance is critically important, and efforts in veterinary medicine have targeted improving antimicrobial use in food animal medicine. Since companion animals are in such close contact with their human owners, improving stewardship in this setting is essential, according to Dr. Fellman.



DR. COURTNEY HUNTER (DVM 2017, PhD 2018) is currently a third-year resident in laboratory animal medicine at the University of Michigan's Unit for Laboratory Animal Medicine (ULAM).

"When I was ten, I knew I wanted to become a veterinarian, but I thought I wanted to work in a zoo," Dr. Hunter said. "As an undergraduate student, I came from Duke University to MSU

CVM for two summers and worked with Dr. Swiderski in equine medicine which helped me develop an interest in research," Dr. Hunter said. "I ultimately enrolled in the dual degree program which made me perfectly suited to work in laboratory animal medicine, a combination of clinical medicine and conducting research."

According to Dr. Hunter, her residency in laboratory animal medicine involves, in part, taking care of the clinical side of animals used in biomedical research, where there is a strong regulatory presence to ensure investigators and researchers follow federal and local guidelines for veterinary care and research. She also works on protocol review to make sure that animal welfare is considered first and foremost.

"Animal models help provide positive outcomes for human health models; drug development and surgeries first come from animal models," Dr. Hunter explained. "Research helps improve methods for animal health and eventually translates to new therapies and improved treatment for humans. Knowing how important that is makes the 'long road' that is research worth the hard work."

In July, Dr. Hunter started a new benchtop project using a rat model to study acute respiratory distress syndrome (ARDS). "ARDS is a big component of sepsis, a life-threatening complication of an infection. Using an animal model, I am looking at the affects of being on a ventilator to evaluate what happens at the biological level," she said. "I planned this study prior to the COVID-19 outbreak but now there's increased interest and relevance since some COVID-19 patients develop ARDS."

Veterinary medicine is a One Health profession, and now, more than ever, MSU CVM veterinarians are working to improve the well-being of both people and animals. Our alumni are actively engaged in changing the world for the better whether serving as caregivers, researchers or educators.



MSU CVM Center for Environmental Health Sciences CONDUCTING PROJECTS WITH GLOBAL IMPACTS

The MSU CVM Center for Environmental Health Sciences (CEHS) provides a focus for MSU activities directed toward maintaining and improving the quality of environmental health in Mississippi, the nation, and the world. Their goal is to facilitate the development, implementation, and administration of focused and multi-disciplinary efforts in research, training, and service in the area of environmental health.

CEHS research is conducted by five faculty members: Dr. Jan Chambers, Dr. Barbara Kaplan, Dr. Matthew Ross, Dr. Trey Howell, and Dr. Russell Carr—each of whom oversees his own lab.

The Chambers laboratory continues to acquire the data sets that will support the potential value of these brain-protecting antidotes for use in the event of a terrorist attack on the public with nerve agents or a battle-related use of chemical warfare agents to military personnel. The group is accumulating data to show that certain chemicals are likely to be safe to use because they do not cause toxicity, as well as data to determine the most effective use of these compounds in combination with the currently FDA-approved antidote. The group has results that show that the antidotes are equally effective in both male and female laboratory animals when tested against the toxicity

of a surrogate for a nerve agent, since MSU CVM does not have actual nerve agents on campus.

Dr. Kaplan's laboratory focuses on understanding the effects of drugs and chemicals on the immune system. For instance, in one of her projects, which is the focus of her current NIH R15 grant, she has shown that a common environmental contaminant can suppress B cells, which are important cells that produce antibodies, in autoimmune disease. Autoimmune diseases arise in part because of an overactive immune system, so a chemical that suppresses B cells might be beneficial. However, use of an environmental chemical is not a practical therapy choice. Dr. Kaplan hopes to use the information she has learned about how the environmental chemical suppresses B cell antibodies to examine safer chemicals to treat autoimmune diseases.

Another project in Dr. Kaplan's laboratory is understanding if chemicals from marijuana affect autoimmune disease. Chemicals from marijuana, including cannabidiol (CBD), have been touted as "wonder drugs" for many diseases, including inflammatory and autoimmune diseases. Dr. Kaplan is using CBD and the psychoactive chemical tetrahydrocannabinol (THC) in her autoimmune disease model and has recently published a paper showing that CBD given orally early in the disease process decreases the disease severity. She also recently

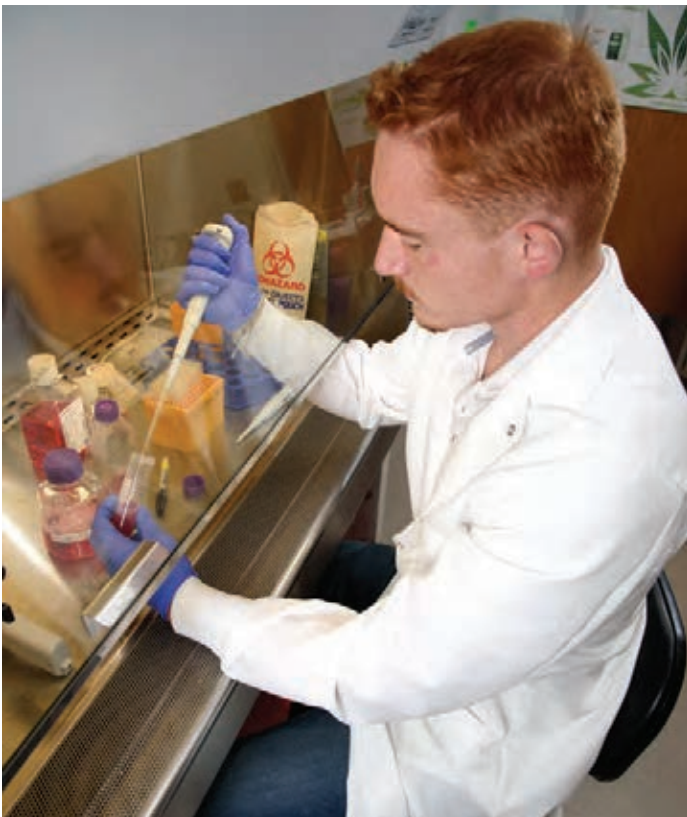
published a review on the immune effects of CBD, which was an important and timely review given that CBD has gained wide societal acceptance and use. Her work will contribute to the body of science necessary to determine the safety and possible therapeutic benefit from marijuana chemicals.

The Ross laboratory seeks to obtain fundamental knowledge of how innate immune cells called macrophages respond in settings of lipid dysfunction and inflammation prevalent in disease states, such as atherosclerosis and lung fibrotic disease. They continue to study a class of enzymes called carboxylesterases (CESs), which have dual roles in the metabolism of xenobiotics (chemicals that are foreign to the body) and endogenous lipids. CESs are found in macrophages, and their data suggests that they have a role in driving macrophage phenotype, which reflects the net overall activity of gene expression in the cell at a given time. Macrophage function (phenotype) is strongly shaped by the combinations of immune-modulating proteins and oxidized lipids that are present in their local microenvironment. Bridging the knowledge gap regarding the immunoregulatory crosstalk they have observed between the carboxylesterase 1 protein and lipid-sensing nuclear receptors in human macrophages will be significant because the links between macrophage polarization state and lipid-driven inflammation are not completely understood. It will enable the acquisition of knowledge to better understand disease states driven by these processes and enable strategies to target them therapeutically.

The overall focus of the Howell laboratory is to determine if routine exposure to pesticides alters the incidence and/or disease progression of obesity and type 2 diabetes. Specifically, for the past decade they have focused on a group of pesticides which are classified as persistent organic pollutants and their potential effects on the way the human body maintains blood

glucose levels, as well as if these compounds alter the way the body controls systemic fatty acid levels. Recently, through a collaborative effort with another CVM laboratory, they have begun to explore if these compounds can exacerbate impaired wound healing which is common in type 2 diabetics. This diabetic wound healing project as well as previous studies have been funded by the National Institute of Environmental Health Sciences branch of the National Institutes of Health. Should the team determine that these pesticides do indeed promote obesity and/or diabetes disease progression, they can then use these compounds as biomarkers for increased disease risk as well as potentially identify optimal disease treatment strategies based on how these chemicals exert their effects in the body.

The focus of the Carr laboratory is to investigate the basis for the adverse effects on brain development that result from exposure to low levels of the commonly used organophosphate (OP) class of insecticides. Unlike high-level exposure which induces excessive excitation in the nervous system resulting in tremors and effects on respiration and other body systems, low-level OP exposure selectively activates components of a signaling system in the brain known as the endocannabinoid (EC) system. The receptors of this system are the main targets to which the main component in marijuana (THC) binds, so that means inappropriate direct activation of this system during brain development can be neurotoxic. However, CPF does not bind to those receptors and exerts its effects by indirectly activating a sub-set of the receptors. This activation appears to induce mis-wiring of neuronal connections in the brain, leading to an imbalance in normal signaling. This imbalance results in persistent effects on normal behavior. The goal is to determine exactly how that indirect activation of the EC system leads to those long-term changes in brain function and behavior.





DONATION EXPANDS EFFORTS to Safely Shelter Pets in Crisis

Fear for safety in one's own home and fleeing as a result of it is a concept hard to fathom for most people. Unfortunately, every 15 seconds in the United States an act of domestic violence occurs. Though men are sometimes the victims of abuse, women are disproportionately impacted, and about four women will lose their lives to such acts daily. It is hard for many to understand why anyone would choose to stay in such a situation.

According to Abby Miller, a licensed master social worker and executive director of Care Lodge Domestic Violence Shelter in Meridian, the reasons that victims stay and continue to subject themselves to abuse are varied and many, but if they have children and/or pets, fearing for their safety is almost always near the top of the list.

"A victim will often delay leaving an abusive partner if they can't take their children with them or secure a safe location for their pets," Miller said. "It's a heartbreaking situation that we see time and again in my profession; however, since the development of the MSU CVM Safe Haven for Pets program, we've been able to provide a pet-sheltering solution for many domestic abuse victims in our area."

And now, according to MSU CVM Clinical Sciences Professor Dr. Sharon Grace, a generous donation to the Safe Haven for Pets program from Jim and Julia Rouse of Suwanee, Georgia, will provide more domestic violence victims the chance to place their pets in safe shelter during times of crisis.

The idea for the Safe Haven for Pets program evolved from Dr. Grace's years as a private practitioner in Franklin, Tennessee, where, in 1996, she was called upon to provide medical care to "Cleopatra," a severely abused kitten. Although the kitten

ultimately succumbed to her injuries, Dr. Grace was determined to use the difficult experience to somehow accomplish a greater good. As a result, she began working with a local domestic violence shelter in Tennessee to offer short-term boarding to pets belonging to families disrupted by violence.



Previously on faculty at MSU CVM, Dr. Grace returned to the College in 1999 and, while attending a domestic violence conference in 2007, met Leslie Payne, past director of Care Lodge. The two exchanged ideas about the need for a program to provide safe shelter for pets belonging to Care Lodge clients, a conversation that ultimately led to the 2008 launch of the MSU CVM-based Safe Haven for Pets program. Now in its twelfth year of operation, the program has provided almost 3,000 days of temporary boarding to 80 pets belonging to over 40 families entering Care Lodge, all at no cost to the owner or to Care Lodge. And while there is growing interest in the possibility of housing pets on-site at domestic violence shelters, that approach is not workable at all shelters. Safe Haven for Pets fills the gap by offering other solutions.

"Our program not only offers shelter and much-needed TLC for these animals, but it also provides vaccines, flea and tick control,

spay or neuter surgeries, heartworm and parasite testing and treatment, and any other medically necessary services for them until their owners are able to be reunited with them,” Dr. Grace said.

The College’s third-year veterinary students deliver hands-on care to the animals under the supervision of MSU CVM Associate Clinical Professor Dr. Christine Bryan, who provides the day-to-day medical care for the animals on a volunteer basis.

“The program is an eye-opening experience for many of our students and often proves beneficial to them for years to come when dealing with clients who are in an abusive relationship. For some students, it can even open the door to their own pursuit of this type of service work,” Dr. Grace said. “It is also beneficial to these animals, who are often fearful and untrusting of most humans when they arrive. The program clearly benefits both humans and animals in a variety of ways.”

Started with grant funds and donations, Safe Haven for Pets has been totally self-supporting since its inception, and the recent unprecedented gift from the Rouses has allowed Dr. Grace to expand the reach of the program beyond Care Lodge and the MSU CVM campus. As of this summer, several other Mississippi domestic violence shelters have been brought under the program’s umbrella, with each shelter working directly with Dr. Grace to find the best nearby pet-sheltering solution for their clients. The Rouse donation will support boarding and veterinary care for each pet during the time that the owner needs safe shelter, with Dr. Grace overseeing continued administration of the new partnerships.

“For more than a decade, we’ve provided a much-needed and valued service for pets belonging to families impacted by domestic violence. It’s such a blessing to see our program grow to benefit others in need,” Dr. Grace said. “Who’d have thought that Cleopatra’s sad story could be transformed into such a meaningful and important legacy for good?”

WeRateDogs

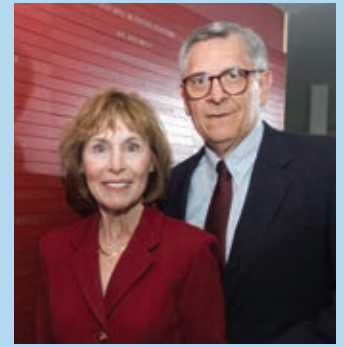
MSU CVM had a quick visit from the founder of WeRateDogs, Matt Nelson, in October. WeRateDogs is a Twitter account with nearly 7.6 million followers that rates people’s dog photos with a humorous caption about the dog.

Nelson was visiting MSU to give a presentation on how WeRateDogs was founded but had time to stop by the Wise Center to meet Bully XXI and learn about all the College does for animals of all shapes and sizes.

During his visit, Nelson was able to visit the Homeward Bound area and chat with Terri Snead, a CVM population medicine technician and the logistical director for Homeward Bound of Mississippi.

“Since meeting Matt, there have been two occasions where he shared fundraising appeals on his platform for Homeward Bound and one of our partner rescues,” Snead said. “Both times the amount raised was double that requested, providing funding for the next rescue emergency.”

MEET THE ROUSES



The 2012 MSU National Alumnus, Jim Rouse is a 1962 MSU industrial management graduate who spent 42 years with ExxonMobil Corporation before retiring as vice president in 2004. He is a native of Libertyville, Illinois, who grew up in Germantown, Tennessee. Julia Rouse is a former first-grade teacher and Laurel native who attended the Mississippi University for Women.

In addition to their philanthropic support, Mr. and Mrs. Rouse actively volunteer their time and service to MSU. A current member of the MSU Foundation Board, of which he is a past president, Jim also is a past member of the boards of the Alumni Association and the Bulldog Club, as well as the dean’s advisory board in the College of Business.

To donate to the Safe Haven for Pets Fund, visit vetmed.msstate.edu and click on “Make a Gift” or contact MSU CVM Development Director Jimmy Kight at (662) 325-5893 or jkight@foundation.msstate.edu.



The first fundraiser was in support of a partner rescue—Yellow Rabbit Rescue—and a litter of puppies they took in that were all diagnosed with Parvo. That fundraiser was created one day, and the \$6,500 goal was met the next day. The second fundraiser was for a sweet-faced dog named Guinness that needed orthopedic surgery. With the fundraiser, Homeward Bound included an Amazon list of things he needed, such as a crate, bed, and chew toys.

“For a solid week we had deliveries from Amazon, many with notes wishing Guinness well or telling us how the donation was in memory of their beloved dog. More than anything, we have been touched by the kindness and compassionate nature of WeRateDogs and its followers. It’s a very unique forum,” Snead said.

NAVIGATING A NEW NORMAL: STRATEGIES FOR COPING WITH CHANGE

While change is necessary for growth, it always produces some level of stress, frustration, fear, and emotionality. Why is it that we never quite come to enjoy the change process, even under the best of circumstances?

Our brains are wired to prefer “normal.” Routines provide a sense of safety and calm, but change requires cognitive effort, attention, and is time and energy intensive. Our brains are also hard wired to detect “errors,” so from an evolutionary perspective, even small changes in the familiar could signal danger to our very existence.

The COVID-19 pandemic has caused us to be flooded with an overwhelming amount of information that is inconsistent and, at times, inaccurate. Just when we think we have everything figured out, we enter a new phase of COVID reality. Shelter in place, work from home, on-line learning, social distancing, and face masks have become part of our new normal and validated our fears.

So, how do we navigate a new normal? We start by moving from a state of social isolation to building “family” bubbles at work and at home, being mindful of the following:

- **Gratitude** – expressions of gratitude benefit the giver as well as the receiver. Regular expressions of gratitude result in long term positive changes in the brain which can contribute to improved stress management, resiliency and cardiac functioning.
- **Kindness** – research on random acts of kindness reflected positive changes in the functioning of oxytocin, dopamine, and serotonin neurotransmitters that play critical roles in emotional well-being.
- **Flexible Thinking** – When we think creatively and compassionately to lessen the burdens of others, we create positive changes in our brains that result in improved emotional management.
- **Connectedness** – People who feel connected to others have lower levels of anxiety and depression, higher self-esteem, greater empathy for others, and are more trusting and cooperative. They also have stronger immune systems and lower rates of obesity, smoking, and high blood pressure.



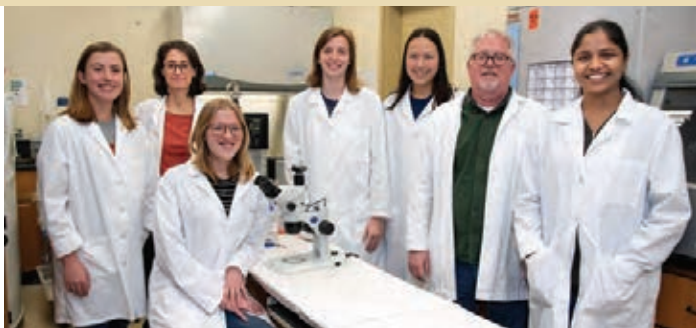
MSU CVM Clinical Psychologist Dr. Pauline Prince

- **Humor** – The limbic system is involved with all emotion, including laughter. Laughter reduces muscle tension, increases energy and improves focus.
- **Fear of the Unknown** – Limit media information and prioritize the information you need. Increase the frequency and amount of information you share within your BUBBLE (home and work).
- **Routines** – Keep routines as normal as possible, making only small modifications as needed. Provide previews of upcoming changes (“remember, tomorrow we . . .”) and “what if” directions (“if schools are closed tomorrow, be prepared to...”).
- **Face Masks** – Face masks can significantly interfere with communication and can be a source of anxiety. Speak with confidence: be mindful to slightly increase volume, announce clearly, look in the direction of your intended audience, and watch for signs of miscommunication.
- **Social Distancing** – COVID has created circumstances under which we must maintain social distancing. However, we need human contact and to be connected for our health and emotional well-being. Be sure to frequently connect with those that bring you joy. We can safely expand from a place of social isolation to FAMILY BUBBLES where we connect, protect, and stay well.

Pauline Prince, Ph.D., ABN

Dr. Pauline Prince
MSU CVM CLINICAL PSYCHOLOGIST

UNDERGRADUATE RESEARCHERS EXCEL IN CVM RESEARCH ACTIVITIES



Few undergraduate students are focused and forward-thinking enough to seek involvement in research laboratories; however, those who do, often find themselves submerged in an environment that cultivates a desire for life-long learning and serves as a catalyst for successfully pursuing an advanced degree. Such is the case in the research laboratory jointly led by Dr. Andrea Varela-Stokes and John Stokes, where one might say a group of undergraduate students has found a “host” and settled in quite nicely!

The lab’s primary focus is on spotted fever rickettsiosis, specifically the interactions between the vertebrate host, tick vector, and rickettsial pathogens. Using a guinea pig animal model and novel assays to monitor rickettsial infection, clinical disease, and the immune response after tick transmission of non-pathogenic or pathogenic rickettsiae, this team of highly capable

and motivated young researchers is, according to Varela-Stokes, largely responsible for moving this important research forward.

All the undergraduates are members of the Shackouls Honors College and have been integral to the team’s work.

Claire Cross, a biomedical engineering major, and Anne-Marie Ross, a biochemistry major, joined the group in the fall of 2018 when NIH funding was initially received for the work. Anna Crawford, also a biomedical engineering major, joined the laboratory in January 2019, and Gabby Fiihr, an anthropology major with a biochemistry minor, joined the group in January.

Dr. Varela-Stokes said each has her own knowledge and skill set, but they truly work as a team, both teaching and learning from each other.

Members of the group have, in fact, partnered to author publications, present at conferences, and develop assays. In addition to these successes, there have—as to be expected—been some failures along the way.

“We celebrate all successes—and failures,” Dr. Varela-Stokes said. “We all appear on the lab’s ‘wall of shame,’ which is a collection of ‘research gone bad’ and is a testament to research being as much about learning from mistakes as it is about learning from successes.”

GUATEMALAN NEUROLOGIST VISITS CVM NEURO SERVICES



Last fall, the Veterinary Specialty Center and MSU CVM Neurology Service hosted Dr. Oscar Thamar-Torres, a neurologist from Guatemala, for five weeks.

MSU CVM Clinical Professor and Neurology Service Chief Dr. Andy Shores initially met Dr. Thamar-Torres through telemedicine. The two were introduced through one of Dr. Shores’s former neurology residents and have since built a strong mentor-mentee relationship. When Dr. Shores asked if he would like to visit the College, Dr. Thamar-Torres jumped on the opportunity.

“After I graduated, I did my specialization in Mexico. But it’s much different than in the U.S. because the idea of specialization is pretty new there,” Dr. Thamar-Torres said. “My goal through this visit was to improve my neurology skills, and I’ve learned so much! I’ve been able to sit in on consultations, ask questions, and scrub in for every surgery. It’s very hands-on learning, and I’m thankful for it.”

Dr. Thamar-Torres took his newly acquired knowledge and skills to his seven-doctor practice in Guatemala, providing a much-needed aspect of veterinary medicine to clients and patients there.

“I can now perform EMG and EEG tests. Although we had the machine at my practice, no one knew how to use it,” he said. “We will now be the first veterinary hospital in probably all of Central America able to perform these electrodiagnosis tests. Dr. Shores has even told me we can send him test results for review while we’re learning to use the equipment more effectively. His support is so important to me!”

KHAITSA HONORED WITH FULBRIGHT US SCHOLAR AWARD



Dr. Margaret Khaitsa, a professor of epidemiology in the MSU CVM Department of Pathobiology and Population Medicine, has received a Fulbright US Scholar Program award to work in Kenya, where she will teach veterinary epidemiology and assist with the development of women in leadership. At the University of Nairobi, Dr. Khaitsa will teach, as well as conduct

applied research on empowerment of women smallholder poultry farmers in Kenya. As part of a broader effort to cultivate women leaders and managers in East Africa, she will also lead an academy focused on women in leadership.

Dr. Khaitsa earned her Bachelor of Science in veterinary medicine from Makerere University in Uganda in 1982, her Master of Science in veterinary medicine from University of Edinburgh in Scotland in 1987, and her PhD in veterinary preventive medicine from The Ohio State University in 1999. She is one of more than 800 US citizens who were selected to teach, conduct research, and/or provide expertise abroad during the 2020-2021 academic year through the Fulbright US Scholar Program; however, due to the COVID-19 pandemic, her program has been re-scheduled to start in January 2021.

Fulbright recipients are selected on the basis of academic and professional achievement along with a record of service and demonstrated leadership within their respective fields, and according to MSU CVM Dean Dr. Kent Hoblet, it's no surprise Dr. Khaitsa finds herself in the company of these esteemed leaders. "Dr. Khaitsa has a very accomplished career in veterinary medicine. Her research focus has been in epidemiology and food safety," he said. "At MSU CVM she has led our study-abroad program in tropical veterinary medicine and One Health and encouraged leadership development in an international setting."

Established in 1946 through legislation introduced by the late US Senator J. William Fulbright, the Fulbright Program is the US government's flagship international educational exchange program designed to build lasting connections between those in the US and those in other countries. It is funded through an annual appropriation by the US Congress and US Department of State, but also receives direct and indirect support from participating governments, host institutions, corporations, and foundations around the world. Program alumni have achieved distinction in many fields, with 59 having been awarded the Nobel Prize, 84 having received Pulitzer Prizes, and 37 having served as a head of state or government.

NICHOLS NAMED TO GRADUATE STUDENT HALL OF FAME



MSU CVM recognized James Nichols, a former dual degree student, as the College's Graduate Student Hall of Fame Scholar for 2019-2020.

Nominated by department heads and selected by the dean of their respective colleges, these scholars are recognized for having made significant contributions to the growth of MSU through their exemplary leadership abilities and

research or teaching skills in their chosen fields of study.

Dr. Nichols earned his DVM in 2016 and completed his PhD in the lab of Dr. Barb Kaplan, associate professor in the College's Center for Environmental Health Sciences, in May. He also holds a BS in biology, BS in biomedical science, and minor in biomedical physics from the University of South Florida.

Dr. Nichols was recognized several times while a student at MSU CVM, according to Dr. Kaplan, who noted his hard work and leadership.

"Jim's hard work is evidenced by his publications; he already has two first-author publications and one as a co-author, and he

will submit two more first-author papers this year," Dr. Kaplan said. "He has also presented several poster abstracts at American Association of Immunologists meetings, as well as given an oral presentation at the first National Veterinary Combined Degree Colloquium at NIH."

In addition, in 2018, Dr. Nichols was awarded The C. Edward Couvillion, DVM, PhD, Endowed Graduate Scholarship due to his active involvement in research and his plans for a career leading to further research.

Dr. Nichols was one of Dr. Kaplan's first PhD students and, through his work, found some exciting results on how marijuana compounds alter autoimmune disease. "Jim brought new techniques to the lab and gave me a fresh perspective on our research since he had the broad veterinary knowledge," Dr. Kaplan said. "I look forward to watching his future success in research."

"Much of the research I've had the privilege of being involved with is potentially very groundbreaking, so each day I wake up and think 'I'm making a difference with what I do today,'" Dr. Nichols said. "I thoroughly enjoy what I do, and I'm looking forward to a long, and hopefully, very productive career in the field. It's really an honor to have been recognized like this upon completion of my PhD."

BOUDREAUX NAMED ASSOCIATE DEAN AT LSU SVM



Congratulations are in order for MSU CVM alumnae Dr. Bonnie Boudreaux, who was recently named the associate dean of academic and student affairs at Louisiana State University School of Veterinary Medicine. In this role, she will be responsible for overseeing curriculum, orientation, class scheduling, conflict resolution, counseling, and wellness for LSU SVM.

Dr. Boudreaux received her BS in 2002 and DVM in 2005 from Mississippi State University and her MS in 2009 from Auburn University. She joined the faculty at the LSU SVM in 2009.

According to Dr. Boudreaux, she was drawn to MSU because of the early entry program at the CVM, and once she visited campus, she knew it was the right place for her. During her studies at MSU CVM, most of the curriculum was project-based learning (PBL).

“I loved this style of clinical reasoning and learning. I think learning to be very self-directed and motivated was one of the

biggest challenges,” she said. “However, I also think it was one of the best assets of the program and promoted life-long learning skills. In fact, I have now coordinated the PBL course at LSU for the last 7 years.”

In addition to her work managing curriculum and student affairs, Dr. Boudreaux will also oversee student clubs, student clinical rotation scheduling, career advising, and the LSU SVM Ross and St. George’s programs—which allow veterinary students in their final year at these schools of veterinary medicine to attend LSU SVM for their final clinical year of study.

Dr. Boudreaux said she looks forward to the opportunity to serve LSU SVM in her new role and offers the following advice to MSU CVM students. “The four years that I spent in veterinary school are some of my most cherished memories. Value the experiences and take advantage of all of the opportunities presented to you,” she said. “Veterinary medicine is a wonderful career. The relationships that are built with friends, colleagues, clients, and co-workers are truly one of a kind.”

Congratulations, Dr. Boudreaux! Your MSU CVM family is very proud of you!

ARCHEY SELECTED TO ISOHA EXECUTIVE COMMITTEE



MSU CVM third-year DVM student Bailey Archey was recently selected vice president of education for the executive board of the International Student One Health Alliance (ISOHA). The ISOHA executive board plans events and creates programming and resources for students involved in One Health around the world. One of seven students from across

the globe now serving on the board, as VP of education, Archey is charged with overseeing educational activities including webinars, a mentorship program, an informal journal, and raising awareness for One Health educational opportunities and events worldwide.

Originally known as Students for One Health, ISOHA is the official international organization for student one health groups and is supported by the One Health Commission (OHC), which is a globally-focused organization dedicated to educating and raising awareness about the importance of transcending institutional disciplinary boundaries to transform the way that human, animal, plant and ecosystem health professionals work together. ISOHA is made up of One Health clubs at universities and individual members from throughout the world. The

alliance collaborates with the OHC to offer One Health educational opportunities to students across disciplines in an effort to promote the One Health concept and enable students to form associations and positively contribute to the community globally.



Archey, who earned a Bachelor of Science degree in animal and dairy science from MSU in 2018, plans to join a large animal private practice following completion of her DVM degree. She is actively involved with the College’s student American Association of Bovine Practitioners, Theriogenology club, and Student Chapter of the Disaster Animal Response Team, and hopes to one day be involved in applying One Health efforts towards agricultural policy.

“I’m honored and excited about this opportunity to serve ISOHA, and I look forward to using this role to help future One Health practitioners expand their knowledge of One Health and through mentorship,” she said. “I also hope to encourage interest in One Health among my fellow MSU CVM students so we can all better understand the value that the veterinary community possesses in solving complex global problems.”

ALUMS EMBRACE CAREERS IN LABORATORY ANIMAL MEDICINE

In the midst of the ongoing pandemic, many of us have gained an increased appreciation for the role and value of vaccines, medicines and medical therapies. However, prior to this global health crisis, the research providing modern medical advances was often taken for granted by the general public. Animal research is a major contributor to almost all advances in human and animal health. Virtually every substantial medical breakthrough has a basis in animal research, and the most 25 prescribed drugs for people were developed with the assistance of animal models.

According to Dr. Lucy Senter, who retired last fall after 15 years as director for the MSU Office of Laboratory Animal Resources and University Veterinarian, it is not common knowledge that laboratory animal veterinarians and their support staff work every single day monitoring the health and welfare of the animals used in biomedical research, shouldering the responsibility of serving as advocates for them.

“Laboratory animal medicine is an exciting discipline that encompasses many fields that relate to the use of animals in research, teaching, and testing. It is the third oldest veterinary specialty in North America; however, these veterinary practitioners are by and large tucked away in labs working diligently to ensure the welfare of the animals that contribute to discoveries benefitting both humans and animals, alike,” Dr. Senter said. “Laboratory animal veterinarians are actually multi-disciplinary contributors to biomedical research. On behalf of the research community, they must ensure that healthy animals are procured and maintained to produce reliable research results. Many also conduct independent research.”



According to **DR. BRIDGET WILLEFORD**, who began working as a clinical veterinarian in the MSU Office of Laboratory Animal Resources (OLAR) in 2004 and has recently been appointed director and university veterinarian, to attain excellence in science, research, testing, and education using animals, you must first provide excellent animal care.

The OLAR provides veterinary care and animal husbandry resources for all animals required in biomedical research, teaching, and testing programs at MSU. The office also ensures that all work with these animals meets state and federal guidelines and regulations.



Dr. Willeford earned her DVM from MSU CVM in 2001 and then completed a small animal medicine and surgery internship at MSU CVM. She has taught classes in laboratory animal health management and laboratory animal technical skills for the past 16 years. With board certification from the American College of Laboratory Animal Medicine and after 15-plus years in the lab herself, Dr. Willeford is well-prepared for the responsibilities of ensuring the university’s research animals receive the best possible care.

“As laboratory animal veterinarians, we serve as a unique link between the humane use of laboratory animals and the advancement of scientific and medical knowledge. From nutritional studies optimizing selenium intake, to infectious disease research and determining the effects of environmentally relevant chemicals, research at Mississippi State can provide meaningful impact on the lives of people throughout the world,” Dr. Willeford said. “Our main role is to promote animal welfare



by ensuring that experimental protocols maximize animal well-being and minimize pain and distress. Ensuring the humane use of animals in biomedical research is a privilege, and I feel honored to be a part of the field of laboratory animal medicine,” she said.

With 25 years of experience as a board-certified laboratory animal veterinarian, MSU CVM Alumnae **DR. WANDA WEST** is well aware that laboratory animal research can be a controversial

“As laboratory animal veterinarians, we serve as a unique link between the humane use of laboratory animals and the advancement of scientific and medical knowledge.”

– DR. BRIDGET WILLEFORD

topic. However, like others in the animal welfare arena, she fully understands and appreciates the contributions animals make in the advancement of medicine and science when no non-animal alternatives are available or applicable, and when research is conducted in the most ethical and humane manner. “The use of animals in biomedical and translational research should not be taken for granted, as it is not our right, but a privilege; it is our responsibility to advocate the 3Rs: replacement, reduction, and refinement, along with humane care and use when working with animals in this capacity,” said Dr. West.

An inaugural member of the MSU CVM Dean’s Council, Dr. West earned her DVM from MSU CVM in 1988, completed a Small Animal Medicine and Surgery Internship at North Carolina State University College of Veterinary Medicine, and completed a three-year residency program in Laboratory Animal Medicine at the University of Illinois at Chicago. She also earned a PhD degree in Pharmacology with a Specialization in Neuroscience from Temple University School of Medicine in Philadelphia, Pennsylvania.

Dr. West currently serves as the Director of Animal Resources and Attending Veterinarian for Boehringer Ingelheim Pharmaceuticals, Inc., located in Ridgefield, Connecticut. She is also Global Animal Welfare Officer for the Human Pharma Innovation Unit where she sets animal care and use policies and has oversight of all Boehringer Ingelheim laboratory animal research programs worldwide.

Her duties at the Boehringer Ingelheim Ridgefield site include providing oversight for all aspects of a state-of-the-art vivarium and leading a comprehensive animal care and use program. As a laboratory animal veterinarian working in the pharmaceutical industry, Dr. West and her team are recognized as valuable contributors to her company’s goals to develop novel and innovative treatments for unmet medical needs. She works with a wide variety of animal species and specializes in comparative medicine. “One of my main priorities is to ensure a balance between scientific endeavors and animal well-being,” Dr. West said. “Many of us have chosen this career path because of the opportunities to make significant contributions in advancing scientific knowledge and medical care for humans and animals. Until the time comes when laboratory animals are no longer necessary to support research, this discipline will need uniquely qualified and compassionate veterinarians who are dedicated to the promotion of animal welfare/well-being and the humane care and use of animals.”

“As a laboratory animal veterinarian, I can contribute to the advancement of science, human and animal medicine, and public health,” Dr. Willeford added. “Public understanding of what we do is fostered by open communication and gaining trust in the importance of our work with animals for the benefit of both man and animals.”



“The use of animals in biomedical and translational research should not be taken for granted, as it is not our right, but a privilege...”

– DR. WANDA WEST

FISH INNOVATION LAB COMPLETES QUICK START PROJECTS

In the fall of 2018, the United States Agency for International Development (USAID) selected MSU to lead the \$15M Feed the Future Innovation Lab for Fish (Fish Innovation Lab). A program under the US Government's global hunger and food security initiative, the Lab's mission is to alleviate poverty and improve nutrition in vulnerable populations through reliable and inclusive provision of fish, a nutrient-rich animal source food.

Dr. Mark Lawrence, a veterinary microbiologist at MSU CVM who specializes in aquatic animal medicine and the director of the MSU Global Center for Aquatic Food Security, also serves as principal investigator on the grant and as director of the Fish Innovation Lab.

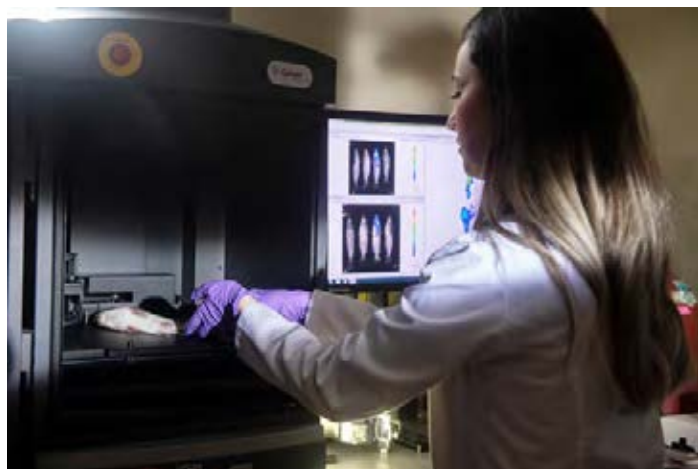
According to Dr. Lawrence, MSU serves as the Fish Innovation Lab's management entity, with the University of Rhode Island, Texas State University, Washington University in St. Louis, and RTI International serving as management partners. This "lab" is not a brick-and-mortar facility but rather a network of experts across the globe who collaborate on applied research to develop human food resources in developing countries.

Dr. Lawrence explained that fish is a highly nutritious food that has potential to address global problems such as childhood stunting. He said MSU CVM is leading programs to improve genetics of fish and reduce disease losses in aquaculture, which will make fish more available and affordable for vulnerable populations, especially women and children. In addition, he said the College's leadership role for the overall Fish Innovation Lab is truly having global impact on helping provide food and nutrition security through provision of fish.

"During the Fish Innovation Lab's first year, we initiated five 'Quick Start' projects in Nigeria, Kenya, Zambia, and Bangladesh to gather information that could be used for building more in-depth projects," Dr. Lawrence said. "Data and reporting results for these projects clearly indicate the need for further research and development in small-scale aquaculture and fisheries to improve food and nutrition security in these countries."

Early results of these projects show:

- Improvements in reducing post-harvest loss could be a catalyst for improved food and economic security in Nigeria's fish value chain.
- Fisher households are less nourished than non-fisher households in parts of Kenya because they are not reserving much of their catch for their own consumption, especially for the young children. In many fisher households in Zambia, children and women consume less harvested fish than men. Increasing fish intake in young children could improve brain development and lower stunting rates in Kenyan and Zambian communities dependent on fish for their livelihoods, leading to overall improved health for these families and communities.
- New genome sequencing data will help Bangladesh improve genetics of rohu carp for aquaculture, which can improve



Research managed by MSU CVM offers hope for food and nutrition security in developing countries.

the nutritional quality and lower the risk of fish loss. This will increase economic opportunities for growers and sellers of this carp.

Lawrence said the knowledge gained from the five small-scale Quick Start projects has exceeded his expectations.

According to Dr. Attila Karsi, an associate professor in the MSU CVM Department of Basic Sciences who serves as US principal investigator (PI) for the Quick Start project in Bangladesh, the project goal is to produce a high-quality genome sequence for rohu carp—the most valuable native aquaculture species in that country, which will enable genetic selection for improvement of that fish.

"This is an outcome Bangladesh aquaculture producers are greatly anticipating," Dr. Karsi said. "Because rohu is the topmost contributing indigenous aquaculture species in the country, any genetic improvement would have a high impact on the total aquaculture production, nutrition, income generation, and livelihoods of the fish farmers, as well as similar positive outcomes for others."

Dr. Lawrence said MSU also boasts the US PI for one of the two Quick Start projects in Zambia, Dr. Kathleen Ragsdale of the



MSU Social Science Research Center, as well as the Quick Start project in Nigeria, Dr. Julius Nukpezah of the MSU Department of Political Science and Public Administration.

According to Dr. Ragsdale, her project aims to identify barriers and facilitators related to expanding aquaculture entrepreneurship and increasing quality and quantity of fish benefiting household nutrition and food security in rural Zambia.

“To figure out how to get more fish to women of child-bearing age and children in that critical developmental stage known as the ‘first 1,000 days of life,’ we need to understand how fish is coming off the boat and where it’s going after it comes off the boat,” Dr. Ragsdale said. “Through the Fish4Zambia Quick Start project, we’ll be better able to determine what interventions we can develop that are going to be culturally sound and resonate with the people we are trying to help, especially those in very poor households.”

According to Dr. Nukpezah, his project aims to conduct a comprehensive analysis of the aquaculture and fisheries post-harvest chain of Nigeria to better understand the fate of harvested fish from production to consumption.

“Due to lack of refrigeration, fish change hands quickly to move through the distribution chain, and spoilage is a problem in Nigeria,” Dr. Nukpezah said. “The losses can be overwhelming, but with our research, we will seek answers to this problem, and we expect to see a rippling effect in neighboring countries with similar issues, as well.”

Dr. Robert Wills, head of the College’s Department of Basic Sciences who is an internationally recognized veterinary epidemiologist, and Dr. Larry Hanson, a professor of infectious diseases and immunology within the department, are working on a new, three-year Fish Innovation Lab project in Nigeria.

According to Dr. Hanson, who serves as PI, he and Dr. Wills are working with researchers from Nigeria and WorldFish, an international non-profit research organization, to evaluate fish health challenges affecting tilapia and the native catfish species with a focus on biosecurity and diagnostic/fish health extension infrastructure.

“This study will increase awareness and availability of biosecurity, veterinary care, and other methods to control disease outbreaks in the country’s two largest aquaculture industries. Aquaculture has

expanded rapidly; however, producers have little support,” Dr. Hanson said. “They often use antibiotics indiscriminately. Our goal is to help the industry provide a safer product to the consumer and to increase their profitability, increasing the availability of this important protein source to the local communities.”

Dr. Lawrence said in addition to this project in Nigeria, the Fish Innovation Lab is in the process of launching a number of new projects that build upon these Quick Start projects by continuing to understand and improve systems that support the inclusion of protein—and nutrient-rich fish in diets of the undernourished, especially women and children. These projects will continue and build upon work conducted in Bangladesh, Kenya, Nigeria, and Zambia, as well as expand the work into Cambodia.

“For Mississippi State University and the MSU College of Veterinary Medicine, we are gaining invaluable experience in managing a major USAID-funded program. The University already had experience implementing programs that are advancing agriculture in developing nations, but serving as the management entity for the Fish Innovation Lab is giving MSU the knowledge and experience it needs to be a recognized leader of USAID programs,” Dr. Lawrence said. “The Fish Innovation Lab is also establishing MSU and MSU CVM as leaders in aquaculture and fish health globally, and we are connecting with international partners and research collaborators in many countries.”



MSU CVM SUMMER RESEARCH EXPERIENCE INSPIRES FUTURE RESEARCHERS

“From the time we’re in the fifth grade, we learn about the scientific method; however, we’re continually focused on the ‘question-answering’ side of science,” MSU CVM second-year DVM student Caleb Glover said. “This summer, I was able to be on the ‘question-generating’ side, and it was very gratifying. I was able to really increase my understanding of observational studies.” Glover recently spent the last few months characterizing severe outbreaks of bovine keratoconjunctivitis in beef cattle as part of the College’s Summer Research Experience (SRE).

This 12-week investigative program provides veterinary students with training in biomedical research and is one of only 15 National Institutes of Health (NIH)-funded summer research programs in US colleges of veterinary medicine. According to Dr. Barbara Kaplan, co-director of the MSU CVM SRE, the program provides skills that not only encourages pursuit of research careers, but helps students develop into leaders within the veterinary profession.

“Veterinarians represent a large, mostly untapped source of biomedical researchers. Their training provides them with a thorough understanding of the similarities and differences in physiology and diseases of various animal species,” Dr. Kaplan said. “Translating basic medical discoveries into clinical applications, or translational research, continues to thrive as an important priority in biomedical research. Animal models are a critical component of successfully making this transition; therefore, veterinarians trained in research are well-equipped to advance our understanding of both animal and human disease.”

“Veterinary scientists are also ideally suited for investigating zoonotic diseases and developing novel disease treatments, preventatives, and diagnostic approaches. With their broad training, veterinarians play an important role in understanding the epidemiology of animal diseases while integrating environmental and human health,” SRE co-director Dr. Keun Seo added. “Veterinary scientists are significant contributors to the advancement of research in areas including food safety, infectious diseases, toxicology, and genomics that may be directly or indirectly linked to biomedical research.”

However, according to both Kaplan and Seo, when veterinary students lack exposure to investigative programs, relatively few of them pursue training that leads to research careers. This is why the College’s SRE is so important; it introduces students to the exceptional career opportunities available in the field and may inspire them to pursue a career in research.



The SRE provides training through two major components. The first is a hands-on research experience with a faculty mentor that continues throughout the 12-week program. The second component is a series of interactive educational experiences that are integrated throughout the program and culminate in attending the Boehringer-Ingelheim-NIH National Veterinary Scholars Symposium (BI-NIH NVSS).

According to Dr. Seo, for the research component, each student in SRE works with a faculty mentor who has a matching research interest on a relevant medical or veterinary problem.

“Through interaction with the mentor, trainees receive training in the formulation of a testable hypothesis and in the design of an appropriate experimental strategy. They conduct research in the faculty mentor’s lab and work under their mentor and other laboratory personnel to gather data, analyze, and interpret their findings,” Dr. Seo said.

Unfortunately, COVID-19 forced much of the 2020 SRE to be conducted virtually. However, both Kaplan and Seo believe the program was still very successful. “I was really pleased with how well the virtual education sessions went. We had 100% attendance, and the students were super engaged,” Dr. Kaplan said. “A great deal of work was put in by the mentors to prepare their research plans, which were required to incorporate non-contact projects, identify deliverables and include a plan for returning to the lab when we were able to do so.”

Cassandra Barber, a second-year MSU CVM DVM student who plans to become a veterinary research pathologist, said that despite the modifications the pandemic required be made to this year’s program operations, the overall experience was everything she had hoped. “I have participated in undergraduate research, but the SRE definitely took things to the next level. My experience truly mimicked the work I

hope to pursue in the future,” she said. “My project focused on alternative ways for treating bacterial infections, specifically bovine respiratory disease, in an effort to lay the groundwork for the development of prophylactic therapies that will not contribute to antimicrobial resistance, which has become a pressing global health problem.”

Once trainees have completed their research projects, they prepare and present their research results at the MSU CVM Research Day and the BI-NIH National VSS, which is held annually at a US college of veterinary medicine.

“Through this process, they learn the value of creative and critical thinking in research, and they receive practical experience in conducting, analyzing, and presenting their research findings,” Dr. Kaplan said, adding that students’ areas of research have included everything from infectious diseases, bone healing and genomics to parasitology, immunology and epidemiology.

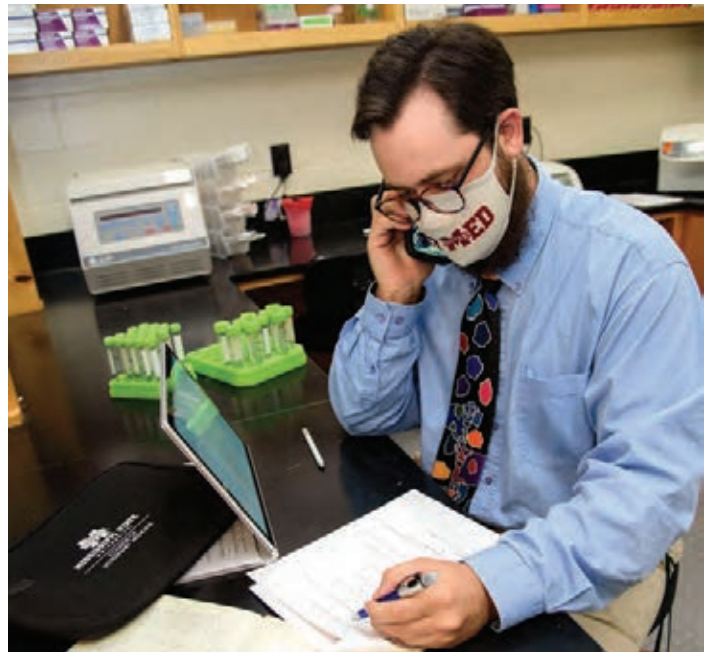
Much of the educational component of SRE occurs early in the program, and training is generally in the form of interactive workshops that prepare students for their research experience. Training sessions include these and other such topics:

- Ethics in Science and Research
- Humane Use of Animals in Research
- Scientific Writing and Presentations
- Writing and Rewriting Grant Proposals
- Patenting and Technology Transfer
- Laboratory Safety and Biosafety
- Career paths in research

The educational component also includes visits to laboratory animal and veterinary diagnostic facilities and allows for periodic meetings between program directors, trainees, and mentors.

Dr. Kaplan said the key to success of the MSU CVM SRE is the close collaboration of outstanding students with dedicated, competent scientists.

“We have so many top-notch scientists who participate in SRE, and the program absolutely would not be possible without their hard work and commitment,” she said, adding that the following served as MSU CVM SRE mentors: Drs. David Smith,



Kimberly Woodruff, Michael Jaffe, Jesse Grady, Graham Rosser, Amelia Woolums, Bill Epperson, Lauren Beatty Priddy, Lesya Pinchuk, Laura Petrie-Hanson, along with Dr. Mark Lawrence, longtime director of the program who still provides critical guidance.

“Participating in the SRE is an amazing learning opportunity,” second-year MSU CVM DVM student Katlyn Harris said. “I would highly recommend it to any student who wants to broaden their laboratory knowledge and experience. The program offers mentors with diverse backgrounds and areas of expertise, so it’s easy to find a project that is of interest to you.”

Dr. Amelia Woolums, a professor in the College’s Pathobiology and Population Management department, has mentored numerous SRE students through the years and serves as Barber’s mentor. “I would 100% recommend the SRE program. Not only does it teach you the scientific process and critical thinking, but you also gain a valuable mentor/contact,” Barber said. “I enjoyed my time in Dr. Woolums’ lab so much that I plan to continue my research during school breaks. I definitely feel I have gained an advisor and mentor for life.”

Funding for the College’s SRE is provided primarily through the Boehringer-Ingelheim Veterinary Scholars Program and NIH T35 Program. In addition, MSU CVM’s T35 award is jointly administered with Tuskegee University College of Veterinary Medicine (TUCVM), so program participants are encouraged to explore potential mentors at both schools to determine who might best fit their research interests.

MSU CVM SRE participants must be enrolled in and have successfully completed the first year of veterinary college in good academic standing; they cannot have completed the veterinary degree at the time of participation in the program and may be from any college of veterinary medicine in the United States. No prior experience in research is required, and the College seeks to involve students from underrepresented populations in the program. For more information about the application process, visit vetmed.msstate.edu/research/summer-research-experience/apply.





ALTERNATIVE CELEBRATIONS HOSTED for the DVM Class of 2020

As a result of the country's health crisis, the MSU CVM DVM Class of 2020 was unable to have the traditional events that generally surround commencement. However, thanks to the support and commitment of College leaders and the effort put forth by some key faculty members and staff, these new veterinarians were still celebrated as they reached this important milestone in their lives!

Members of the Class of 2020 were initially featured on the College's social media pages. Beginning in early April, each graduate's composite photo, accompanied by his or her hometown and future plans, was shared until all 86 had been posted.

Then, CVM leaders and faculty members, University leaders and representatives of the class, stepped in front of the MSTV camera to record each segment for virtual versions of both the College's annual awards program and hooding ceremony. Special thanks to MSU CVM graduate Dr. Victoria Hall (DVM 2014), then veterinary epidemiologist at the Smithsonian National Zoo, who was selected by the class as this year's guest speaker and graciously agreed to deliver her message to the graduates via Skype!

Both the awards program and hooding ceremony, which were pre-recorded and live streamed on the originally scheduled date and times, are now available for viewing through a link on the CVM website, where the graduates photos and their bios are also featured.

A special memory booklet was also produced for this year's class. It included a handwritten message from MSU CVM Dean Dr. Kent Hoblet to each graduate; well-wishes from the Dean's

Cabinet; list of those recognized during the awards program; faculty listing; composite photos of the grads; order of events for commencement; the Veterinarian's Oath, and a DVD copy of the awards program and hooding ceremony.

Another tribute to the Class of 2020 was an informal PowerPoint presentation created to spotlight each graduate. Each class member was given the opportunity to submit photos and information about their personal journey, favorite memories, message to their classmates and career goals to be shared on a series of three slides. This info was compiled into a single slideshow and copied onto a cowbell-shaped thumb drive for each class member.

Ultimately, each graduate was mailed a package including the items previously mentioned along with an official MSU CVM VetMed alumni t-shirt, and class composite photo compliments of the College.

"All of us at the CVM shared in the disappointment this class felt when the pandemic made it necessary to change so many things as their final weeks as a veterinary student were coming to a close," Dr. Hoblet said. "Although there is no comparison to an actual ceremony—walking across the stage, receiving your diploma, shaking hands with President Keenum—and sharing this experience with friends and family, our hope is that these packages illustrated both our empathy for and pride in this amazing class. Every effort was made to provide them with something that would be a keepsake in the days to come."



MEMBERS OF CVM CLASS OF 2020 HONORED AT VIRTUAL AWARDS BANQUET

The MSU CVM Annual Awards Program was pre-recorded and live streamed by MSTV on Wednesday, April 29 at 10 a.m.
The program is available for viewing by visiting vetmed.msstate.edu/alumni-friends/class-of-2020.

Congratulations to the following awards recipients:



DEAN'S PEGASUS AWARD RECIPIENT

Megan M. Violand

The Dean's Pegasus Award is the highest award given to a member of the graduating class. The award is based on an assessment by the College's Administration of a student's displayed qualities of character, professionalism, leadership, and the promise of a career of service to the veterinary profession as demonstrated by his/her service before and while in the College of Veterinary Medicine.



BARDSLEY AWARD FOR HIGHEST ACADEMIC ACHIEVEMENT RECIPIENT

Gabrielle Ruble

The late Dr. Charles Bardsley and Mrs. Viola Bardsley of Ocean Springs on Mississippi's Gulf Coast were very interested in the academic success of students studying veterinary medicine. Because of this interest, they established a scholarship at MSU CVM more than 20 years ago to recognize academic excellence. The Dr. Charles and Mrs. Viola Bardsley Scholarship is given to the graduating student who has achieved the highest grade point average during their time in the MSU College of Veterinary Medicine. This scholarship is in the amount of \$10,000.



ASSOCIATE DEAN'S AWARD RECIPIENT, POCO AND CLIO GENTLE DOCTOR AWARD RECIPIENT

Skyler H. Caldwell

The Associate Dean's Award is among the highest awards given to a member of the graduating class. Based on an assessment of displayed qualities of character, professionalism, leadership, and the promise of a career of service in veterinary medicine, it is given to a graduating senior who is not entering private clinical practice.

The Poco and Clio Gentle Doctor Award is presented by members of the graduating class to a classmate whom they would choose to treat their own animals. The award takes into consideration the ability of the recipient to effectively treat his or her patients while demonstrating kindness and compassion toward those animals under his or her care.



ZOETIS TEACHING AWARD RECIPIENT

Dr. Matthew Williams

The Zoetis Teaching Award is presented by the graduating class to the faculty member they believe has most significantly contributed to the advancement of the profession through their teaching, dedication, and leadership.

Other nominees for the award this year included Dr. Todd Archer, Dr. Frank Austin, and Dr. Marc Seitz.

Mississippi Veterinary Medical Association Companion Animal Award: Jessica Sumner Zehr

Mississippi Veterinary Medical Association Economic & Performance Animal Award: William B. Crosby

Mississippi Veterinary Medical Association Large Animal Award: M. Austin Whitmon

American College of Veterinary Surgeons Large Animal Award: Megan M. Violand

American College of Veterinary Surgeons Small Animal Award: Blair Bennett

American College of Veterinary Pathologists Award for Excellence in Pathology: Samantha M. Hughes

Veterinary Emergency and Critical Care Society Award for Proficiency in ER/CC: Amanda Waddle

American College of Veterinary Internal Medicine Clinical Excellence Small Animal: Skyler H. Caldwell

American College of Veterinary Internal Medicine Clinical Excellence Neurology: Blair Bennett

American College of Veterinary Internal Medicine Clinical Excellence Large Animal: M. Austin Whitmon

Veterinary Cancer Society Award: Jenna H. Krizak

Clinical Pathological Conference Award (Tie): Skyler H. Caldwell and Kelsey Traylor

Clinical Pathological Conference Attendance Award: Hannah E. Urig

Student American Veterinary Medical Association Award: Katie Claire Bibb

American Association of Feline Practitioners Feline Medicine Award: Jenna H. Krizak

American College of Veterinary Radiology Award: James Lucas Yates IV

American College of Veterinary Ophthalmology Award: Haleigh Schreckengost

American Animal Hospital Association Award for Proficiency in Primary Care: Brandon S. Dailey

Proficiency in Theriogenology Award: Rachel Marie Wilson

Tonya Graham Proficiency in Anesthesia Award: Samantha M. Hughes

Veterinary Business Management Association Honors Business Certificate recipients: Blair Bennett, Brandi Amos Mills, Kimberly Simpson, Rachel Marie Wilson

Veterinary Business Management Association Business Certificate Recipients: Katie Claire Bibb, Breanna Caitlin Brown, Krystle Dawn Clayton, Blake Crawford, Erin C. Close, Kristen Frank, Anna Hubbell, Jessica Matta Jordan, Kelsie Penny, Carly Pierson, Bastiana Rodebaugh, Juliana Santiago, Haleigh Schreckengost, Kimberly Simpson, Alexis Tentler, Megan M. Violand, Jessica Sumner Zehr

The C. Edward Couvillion Endowed Graduate Scholarship: Ethan Woodyard

Wise Scholars (GPA between 3.5 and 3.79): Harlie Barkley Arndt, Katie Claire Bibb, Samantha Blossom, Chris Campbell, Erin C. Close, William B. Crosby, Kaitlyn Hennessey, Anna Hubbell, Jenna H. Krizak, Lexi Loftis, Whitney A. Maloney, Maj Elizabeth Morgan, Juliana Santiago, Thad Ellis Skinner, Kelsey Traylor, Thomas Chase Waldrip, Rachel Marie Wilson, Joshlyn Martin Winstead, Jessica Sumner Zehr

Giles Scholars (GPA of 3.8 and greater): Ethan Baggett, Skyler H. Caldwell, Carly Bardwell-Glinski, Gabrielle Ruble, Kimberly Simpson, M. Austin Whitmon

VMT PROGRAM GRADUATES THIRTY-ONE IN CLASS OF 2020

In the midst of the COVID-19 pandemic, thirty-one students graduated from the College's Veterinary Medical Technology Program on May 1. And, while these students weren't able to have a traditional graduation, a recorded graduation ceremony was livestreamed.

Guest speaker Paula Morgan, MSU CVM VMT Class of 2016 alumnae, challenged the graduates to go forth boldly and embrace their new careers. She stressed the importance of practicing without fear of making mistakes, but owning mistakes when they happen, as well as the importance of teamwork. Morgan also challenged the graduates to never stop learning.

The ceremony concluded with a portrait of each graduate appearing on the screen as their name was read. This was followed by well wishes delivered by each of the VMT faculty and staff members. To view the video, visit vetmed.msstate.edu/alumni-friends/class-of-2020.

Each graduate was mailed a package including a certificate of completion, their official VMT pin, and a cowbell later in the summer to officially conclude the celebration.

"We couldn't be more proud of these graduates," MSU CVM VMT Program Director Dr. Allison Gardner said. "We know they are going to do great things, and we wish them all the best!"

NASH NAMED ALUMNUS OF THE YEAR



Dr. Jon Nash and wife Nikki with MSU President Dr. Mark Keenum at the Alumnus of the Year reception at the president's home.

Dr. Jon Nash was surprised when he answered the call from MSU CVM Dean Dr. Kent Hoblet. He never expected an invitation to be honored as the CVM's Alumnus of the Year, but that's exactly what Dean Hoblet was proposing.

"It's kind of an item that wasn't on my bucket list, but definitely should have been. I love Mississippi State, but I never thought that after finding my way down to Orlando, Florida, I would be visiting the College in this role—as Alumnus of the Year. I'm extremely honored," Dr. Nash said.

Dr. Nash was born in Starkville. A fourth-generation Bulldog, his great-grandfather, Professor R.C. Carpenter, was the first engineering graduate of Mississippi A&M College and later served as the head of the engineering department at MSU.

A member of the Class of 1991, Dr. Nash was in the inaugural group of Early Entry Students to enter MSU CVM. "The program has changed

a lot since then," he said. "We were thrown into classes with the first-year students at the CVM straight out of high school. So, while I was in my freshman year of college on main campus, I was also coming over here to take one class a semester."

Since receiving his DVM, Dr. Nash has worked with several animal clinics in Florida. In 1992, he joined Sand Lake Animal Clinic in Orlando, Florida, and in 2011, he purchased the practice, which has five doctors and is accredited by the American Animal Hospital Association.

While Dr. Nash has a special interest in orthopedic surgery, he admits that he loves general practice due to the challenge it presents every day. "It's not a 9 to 5 job," he said. "Unless you're running a vaccination clinic, you work until the job is done. Sometimes that's 5:00 p.m., and sometimes you take a patient home for the night."

Aside from practicing veterinary medicine, Dr. Nash enjoys hiking and serving on mission trips. One of his personal goals in life is to hike the entirety of the Appalachian Trail, and to date, he's made it almost halfway. Dr. Nash has been participating in mission trips to Honduras for the past 14 years, where he provides medical care to the animals of the villages they visit.

Veterinary care in Honduras is hard to come by, meaning Dr. Nash sometimes has to get creative. The veterinary care he provides there ranges from routine checkups and vaccinations to spay and neuter surgeries, often performed on the back of a truck or on top of a folding table. He says he looks forward to this trip every year, as it allows him to think outside of the box and experience a different type of veterinary medicine.

When he's not working, Dr. Nash and his family enjoy returning to Starkville where they've built a house to get away and enjoy MSU football, basketball, and baseball games.

CHISHOLM RECEIVES FOOD ANIMAL INCENTIVE AWARD



Dr. Cari Chisholm, a resident in the MSU CVM Theriogenology Service, received the Dr. W. Bruce Wren Food Animal Incentive Award at the annual Western Veterinary Conference (WVC) hosted in Las Vegas, Nevada, in February.

Named for longtime WVC food animal program manager and industry leader W. Bruce Wren, DVM, the award recognizes recent graduates from AVMA Council on Education-accredited

veterinary colleges across the United States who maintain an interest in food animal clinical practice and continue to an advanced training program such as an internship, residency or related graduate program. It encourages veterinarians to enter food animal practice or other careers directly related to food animal practice, such as food animal education and/or research. Criteria for the award emphasizes applied knowledge to further food animal veterinary medicine such as clinical practice, clinical skills educational instruction, and clinical and applied research.

Dr. Chisholm, who earned her MS in poultry science from MSU in 2014 and her DVM from MSU CVM in 2018, practiced large animal

medicine at a private practice in Nocona, Texas, prior to returning to MSU CVM for her theriogenology residency. She was one of five postgraduates honored with the award this year in recognition of excellence in food animal medicine. She received a \$1,000 stipend along with complimentary registration, lodging, airfare, meals and a travel allowance for the 93rd annual conference.

Dr. Chisholm is also a recipient of the Kathleen Cornelius Albert Ryan Endowed Fund Travel Award funded by Dr. Peter Ryan. Her special interests include advanced reproductive modalities such as embryo transfer and *in vitro* fertilization, along with herd health and production medicine. Her career goals are to become a board-certified theriogenologist and to practice food animal and equine medicine with a concentration in advanced reproduction. Dr. Chisholm also has a strong interest in clinical instruction and hopes to continue to educate future veterinary students after completing her residency.

According to Dr. Bill Epperson, MSU CVM Department of Pathobiology and Population Medicine head, Dr. Chisholm is an outstanding practitioner and is destined for a successful career in the field of animal reproductive science. "Cari is enthusiastic and outgoing, and she is an outstanding teacher who connects well with clients," he said. "She is very deserving of this honor."



COLLEGE EXPANDS AND UPGRADES Recruitment Efforts and Admissions Process

MSU CVM is a hidden treasure among colleges of veterinary medicine. There are some people in the southeastern United States—and many people throughout the remainder of the country—that know very little about us. When someone visits our campus or actually sees first-hand how prepared and skilled our graduates are, they “discover” this treasure.

As competition continues to increase for the very best students, we are working to better promote our College, as well as to upgrade and expand the way we recruit and admit students. Under the direction of MSU CVM Dean Dr. Kent Hoblet, several faculty members have been moved into new roles and/or appointed to committees and task forces formed to facilitate this process.

An email call for interest for those who would like to be involved with student recruitment netted a great deal of positive response from a broad spectrum of faculty members and led to formation of the College’s very first official recruitment team in the spring of 2019, which has now completed its first full year of service, albeit slightly sidelined in the last few months as a result of the COVID-19 pandemic.

Dr. Brittany Moore-Henderson, who moved into the role of director of admissions in 2018, works closely with this group, which is charged with everything from participating in recruitment fairs to advising prospective students. Team members include these faculty members who are assigned to the following colleges and universities or states/countries from

which the College attracts a significant number of applicants:

- **Dr. Brittany Moore-Henderson** – Jackson State University, Tougaloo Collee, Alcorn State University, Mississippi Valley State University, University of Mississippi, Mississippi College, Delta State University, Mississippi University for Women
- **Dr. Debra Moore** – University of Southern Mississippi, Mississippi Gulf Coast Community College, William Carey University, and Puerto Rico
- **Dr. Michaela Beasley** – Berry College, Delaware Valley University, Penn State, Rutgers
- **Dr. Matthew Williams** – South Carolina
- **Dr. Kevin Walters** – University of Tennessee-Martin
- **Dr. Jake Shivley** – Arkansas
- **Dr. Robin Fontenot** – University of Findley, Otterbein University
- **Dr. John Thomason** – West Virginia
- **Drs. Jeb Cade & Patty Lathan** – Were unable to participate in initial efforts due to prior commitments, but will be actively involved moving forward

According to Dr. Henderson, the recruitment team has developed several goals for the upcoming year, one of which is to further expand its reach, visiting additional states based upon recent application cycles.

VET MED STATE ALUMNI

The College is actively seeking alumni who would like to be involved with the recruitment and admissions process. Let us know if you:

- are an MSU CVM grad that is willing to reach out to potential students to share your positive experience and all the awesome points about our College. You could write notes, attend recruitment fairs, visit junior colleges/colleges/universities in your area, make phone calls, send emails, and/or help in countless other ways!
- would like to come back to your alma mater to be involved with prospective student selection interviews. You can be involved for one day or multiple days; it's up to you! Come check out how much we've grown and changed; visit with your former professors, and enjoy the sites and sounds of Starkvegas, all while you're doing your part to advance our College.

To learn more about how you can get involved, contact the MSU CVM Admissions Office at (662) 325-4401. We are super thankful for alumni support and hope to hear from you soon!

"I feel like this team accomplished a great deal and learned a lot this year. We're definitely off to a good start; there's no doubt that our efforts to beef-up our engagement with potential students will pay off!" she said.

Three new employees also joined the MSU CVM Admissions Office in the last year, and efforts are well underway to improve the College's overall student selection and admissions process. Working alongside Dr. Moore-Henderson are Robin Graves, admissions manager, Meredith Nagel, admissions coordinator, and administrative assistant Karrie Files. Graves, who earned her BS in elementary education and MS in student development in higher education from MSU in 1991 and 1997, respectively, comes to MSU CVM with experience in student recruitment and marketing, selection and admissions at both the undergraduate and professional school level, having worked at Southern College of Optometry, Vanderbilt University, Volunteer State Community College, and in the MSU Undergraduate Admissions Office. Nagel earned her BS in human development and family studies from MSU in 2007 and is currently completing her MS in instructional technology. She, too, comes with admissions experience, having worked with admissions procedures and workflows, Banner processing and training, CRM management, and recruitment in the MSU Office of the Graduate School. Files is completing a BS from MSU at present. Her background includes work with graduate records, advising, financial aid, and procurement through the MSU Department of Counseling, Educational Psychology and Foundations.



Dr. Brittany Moore-Henderson, admissions director; Robin Graves, admissions manager; Meredith Nagel, admissions coordinator

The admissions office implemented several enhancements for the most recent admissions cycle and has outlined several additional goals to improve the process planned for the upcoming cycle.

Changes made to the recent admissions cycle include conducting two orientation sessions per interview day to reduce the wait time for candidates and including faculty in the pre-interview pizza parties. "Both of these things proved to have a positive effect on the process," Dr. Moore-Henderson said. "Most candidates are pretty anxious prior to their interview, so reducing wait time and giving them the opportunity to connect with faculty members and students in a relaxed atmosphere seemed to really help. Plus, the pizza

party has always been a great way for them to get a feel for the family-like environment we have here."

Goals for the next admissions cycle include moving to a more "holistic" process, designed to encourage greater diversity and inclusion among students, as well as actually beginning to interview candidates in the fall in order to offer top students a spot in the incoming class earlier in the selection process.

CLASS OF 2024 ARRIVES AND SET TO EXCEL DESPITE PANDEMIC



The MSU College of Veterinary Medicine welcomed a new class of 97 DVM students on Monday, June 22. They arrived in Starkville from 20 states across the country, and after the recommended period of self-quarantine, were more than ready to dive into classes, despite the ongoing COVID-19 pandemic.

These students were some of the very first welcomed to the “new normal” of social distancing, wearing masks and increased disinfection on the campus of MSU. The CVM dean’s cabinet, faculty leaders and a task force appointed by the dean put a great deal of time and effort into planning for the arrival of these students, as well as for the return of the second-, third-, and fourth-year classes, in order to ensure the safest possible environment for learning while continuing to provide the outstanding curriculum and instruction for which our College is known.


Although this year’s class wasn’t able to participate in the College’s traditional orientation events and coating ceremony due to safe social distancing practice requirements, they were officially welcomed by MSU CVM Dean Dr. Kent Hoblet and MSU Executive Vice Provost and Dean of the Graduate School Dr. Peter Ryan.

Each first-year student received an official MSU CVM Vet Med face mask to go along with the College’s new protocols to help maintain a healthy and safe learning and working environment for all. In addition to wearing a face covering, 1st-year students are receiving class instruction in the CVM auditorium, which allows room for the recommended social distancing. The College has also installed more than 40 additional hand sanitizer units throughout the Wise Center, and the custodial staff, which underwent special training related to their role in mitigating the virus, was also expanded to allow for increased sanitization of the facility; they now wipe down all common areas—especially door handles, desks and other such surfaces—between class sessions, as well as perform routine cleaning duties on a more frequent schedule. Through the generosity of the University and Division of Agriculture, Forestry and Veterinary Medicine leadership, a fogger was acquired and is also being used for additional sanitization efforts throughout the facility.



According to MSU CVM Associate Dean for Academic Affairs Dr. Jack Smith, the College actually began preparing for the Class of 2024’s arrival in late April.


“Immediately following the Class of 2020’s graduation, we began planning for the arrival and start of in-person classroom instruction for our new 1st-year students. We knew it would take a tremendous amount of planning and preparation to ensure we could provide a learning environment that was as safe as possible in light of the COVID pandemic,” he said. “We felt it was imperative that we provide face-to-face instruction if we could do so in a safe manner. Making this happen was truly a collaborative effort among academic affairs support staff, facilities personnel, and faculty, as well as other CVM partners. Everyone put in a tremendous amount of time and effort, and I feel comfortable that we are providing as close to a ‘normal/typical’ experience for our students as possible, while keeping their safety and that of our faculty and staff as a priority.”

According to MSU CVM Director of Admissions Dr. Brittany Moore-Henderson, plans are to officially hold the Class of 2024’s Coating Ceremony as soon as it is determined that the College can safely do so. “We understand this ceremony is an important and special time for our students and are going to do everything possible to make it happen,” Dr. Moore-Henderson said. “However, the safety of all involved has to come first.”



DVM Class of 2024 BY THE NUMBERS

97	Students	84	Female ♀	13	Male ♂
16	Early Entry Students	22	Average Age		
1,546	Applications	321	Students Interviewed		
BS	94	MS	2		
Degrees Attained		GPA Range			
3.41 - 4.0		26%			
 Underrepresented Populations					
 <p style="font-weight: bold; margin: 0;">20 States Represented</p>	Alabama Arkansas Connecticut Florida Georgia	Indiana Louisiana Maryland Massachusetts Mississippi	Missouri New Jersey North Carolina Ohio Pennsylvania	South Carolina Tennessee Texas Virginia West Virginia	



MISSISSIPPI STATE UNIVERSITY™
COLLEGE OF VETERINARY MEDICINE

Earning Respect by Exceeding Expectations

FOURTEEN FIRST-YEAR STUDENTS NAMED BARDSLEY SCHOLARS



This spring, MSU CVM awarded prestigious Bardsley Scholarships to 14 members of the in-coming, 97-member doctor of veterinary medicine (DVM) class of 2024.

Receiving Bardsley Scholarships are Karrigan Bowers, Kaitlyn Knuth, Hannah Pray, Skyler Turner, and Makayla Wiley of Mississippi, Megan Bright of Arkansas, Allison Brunner of Ohio, Ian Evans and Wesley Richards of Tennessee, Alicia Jackson, Anna Loyd, and Kelsey Miller of West Virginia, and Gladys Reyes-Palacios and Jessica Sparks of South Carolina.

Bardsley Scholars must have demonstrated high academic performance by achieving at least a 3.75 GPA on a four-point scale in their undergraduate studies. In addition, they must apply and are selected by a further in-depth, second review of their

application conducted by a committee of MSU CVM Faculty, who review students' extracurricular activities and evaluate their demonstrated leadership potential before making final recommendations for who is to receive the scholarships.

The scholarships are made possible by a gift from the estate of Dr. Charles and Mrs. Viola Bardsley, who lived on the Mississippi Gulf Coast and took a special interest in the MSU CVM. They are awarded to approximately one dozen

students entering the College and meeting the requirements each year. Mississippi residents and students from West Virginia and South Carolina, who receive in-state tuition rates as a result of contract arrangements through their respective state legislatures, qualify for \$25,000 scholarships, and those from other states, who pay out-of-state-tuition, qualify for \$50,000 scholarships.

To retain their scholarship, each Bardsley Scholar must maintain at least a 3.5 GPA in their studies while in the CVM. In addition to the scholarship monies, they are given preferential scheduling of courses, externships, research experiences and clinical rotations, as well as additional leadership training, during their time at MSU CVM.

BURT NAMED TO NEW ASSISTANT DEAN FOR CLINICAL SERVICES ROLE



Dr. Gary J. "Joey" Burt, who has served as director of the MSU CVM Animal Health Center (AHC) since 2011, was appointed assistant dean for clinical services in March.

As a result of this appointment, Dr. Burt will oversee the daily activities of the College's clinical services, including operation of two free-standing facilities—Animal

Emergency & Referral Center in Flowood and Veterinary Specialty Center in west Starkville—as well as continue to serve as director of the AHC, the College's main teaching hospital.

Dr. Burt has a background in veterinary business and health care services. Prior to joining the CVM family as an assistant clinical professor in November 2008, he worked in Oxford, Ohio, where he was veterinarian and owner of Animal Care Clinic for 20 years. Since joining MSU CVM, Dr. Burt has established the very popular Art of Practice and Business Management class, which helps DVM students prepare for numerous aspects of the business

side of practicing veterinary medicine. Dr. Burt also successfully launched the College's first career fair for students last fall, which was so well received that it will become an annual event.

A native of Columbia, Dr. Burt received his DVM from MSU CVM in 1987. In 2011, he completed a Master of Public Health (MPH) with an emphasis in health care administration from the University of Southern Mississippi.

According to MSU CVM Dean Dr. Kent Hoblet, the new assistant dean of clinical services role became a necessity due to the College's continued growth as well as expansion of clinical teaching efforts.

"MSU CVM clinical education continues to grow to better prepare our students for careers in veterinary medicine as well as to serve our state and the region. As we have added teaching programs and services, it became increasingly apparent that we needed someone dedicated to managing the overall aspects of the College's clinical services," Dr. Hoblet said. "Dr. Burt's education, clinic management experience, and commitment to the continued success of MSU CVM made him the ideal candidate, and we are pleased to have him in this role."



Swiderski Research Holds Promise for **HORSES AND HUMANS WITH ASTHMA**

Thanks to the commitment and hard work of Dr. Cyprianna Swiderski, a professor and board-certified internist with the MSU CVM Equine Service, horses—and, eventually humans—with asthma may one day be able to breathe easier.

Dr. Swiderski joined the MSU CVM faculty in 2004. She works in the College's equine clinic and has also developed a nationally recognized research focus in equine respiratory disease, specifically related to equine asthma. Dr. Swiderski's research shows promise to not only benefit horses, but to one day possibly benefit people with neutrophilic asthma.

While pursuing her residency at Louisiana State University, Dr. Swiderski was introduced to an asthma-like disease that strikes certain horses while grazing pastures in the Southeast. According to Dr. Swiderski, affected horses struggle to breathe during warmer months when grass pollen and fungal spores are more prevalent. However, their difficult breathing disappears during cooler months. These signs of respiratory distress tend to progress during successive warm seasons, and in some horses, the first signs may be a cough or exercise intolerance during the warmer months.

"I have always been very disturbed by the suffering of these horses. It is very challenging to treat this condition because, ideally, affected horses should be removed from the agents in

the pasture air that are making it difficult for them to breathe," she said. "But this necessitates that the horses be stalled away from their pasture, and horses are meant to graze."

While at LSU, Dr. Swiderski began to look at the immune responses of affected horses. "We knew the disease appeared nearly identical to human asthma, except for one important thing. The inflammation in the airways of affected horses contained a different cell type from human asthma—at least as asthma was described at the time—leading to the general assumption that these horses did not have true asthma," she said.

However, by the time Dr. Swiderski joined the MSU CVM faculty about 10 years later, knowledge about human asthma was changing. "The literature that had amassed from the time I finished my PhD to coming back to academia indicated that humans with more severe asthma have the same neutrophilic airway inflammation that occurs in affected horses. So now, everything clicked," Dr. Swiderski said. "I knew these horses had something to teach us not only to help them, but to also help people with neutrophilic asthma."

These clinical similarities lead Dr. Swiderski and her colleagues to carefully examine horses with the disease for other similarities to those of severe human asthmatics.

“The literature...indicated that humans with more severe asthma have the same neutrophilic airway inflammation that occurs in affected horses. I knew these horses had something to teach us not only to help them, but to also help people with neutrophilic asthma.”

– DR. CYPRIANNA SWIDERSKI

They have since identified structural changes in the airways and differences in the way the airways of these horses react to irritants that are in unity with findings in severe human asthma.

This latter finding is tremendously significant, according to Dr. Swiderski. “Increased airway constriction to irritants is a defining characteristic of human asthma that typically persists for life and correlates to asthma severity. Despite decades of research, the mechanistic basis of this enhanced contractile response remains enigmatic, largely because the magnitude and persistence of enhanced airway contractile responses seen in human asthma cannot be recreated in animal asthma models,” she explained. “We identified that both the magnitude and persistence of airway hyper-responsiveness in horses with pasture-associated asthma align to those of severe human asthma, identifying the first animal asthma model to recapitulate these elusive facets of human asthma, and the unique potential these horses hold to identify the mechanistic basis of airways hyper-responsiveness in human asthma.”

Building on the shared clinical and structural facets of severe asthma between horses and humans, Dr. Swiderski and her team have recently completed a USDA-NIFA funded investigation to identify the molecular pathways that drive airway hyper-responsiveness in horses with pasture asthma and are currently investigating how these pathways align to findings in human asthma. In addition to characterizing the



similarities between human and equine severe asthma, Dr. Swiderski and her team have also worked to identify better medications to manage the condition, and they have also developed a test to identify affected horses during disease remission in the winter.

The One Health aspect of her research—the dual benefit to horses and humans—has become a real motivation to Dr. Swiderski. “I am absolutely fascinated with this disease and the ability to make a difference for both horses and people that suffer with asthma,” she said. “In addition to our work on what triggers this disease, and how to effectively manage the condition, information continues to emerge that increases the relevance of our work to human asthma.”

“Mississippi has a high incidence of severe and uncontrolled asthma among its human population. We need to know if there’s a connection between people and what horses experience in the state’s pastures,” Dr. Swiderski continued. “We need to find out why a diseased animal over-responds to the exact environment that fails to elicit these signs in a normal animal. We are looking for the links between human asthma and equine pasture asthma, with the primary goal to prevent the problem before it starts,” she said.



CVM FACULTY RESEARCHES DOLPHIN AND SEA TURTLE HEALTH



Normally, sea water has a salinity (salt concentration) level of 35 parts per thousand (ppt). The salinity of the Mississippi Sound, a large ocean inlet that stretches from Waveland to the Dauphin Island bridge, usually maintains a salinity level of 24 ppt. In June of 2019, the salinity of the Mississippi Sound had dropped to 5 ppt—nearly the salinity level of freshwater.

Flooding by the Mississippi River in 2019 led to an unusually high amount of freshwater drained into the Mississippi Sound. As the mortality rate of dolphins and sea turtles on the Mississippi coast spiked, MSU CVM was asked to join forces with the Mississippi State Chemical Laboratory, the MSU Department of Chemistry, the MSU Institute for Genomics, Biocomputing and Biotechnology, the Institute for Marine Mammal Studies (IMMS), the Mississippi Department of Marine Resources, and the National Oceanic and Atmospheric Administration to help tackle the problem.

Dr. Mark Lawrence, CVM professor in the department of basic sciences, serves as director for the Global Center for Aquatic Food Security and leads the team of CVM scientists that have been tasked with investigating the cause of dolphin and sea turtle mortalities during the 2019 freshwater incursion.

“Although it is known that low salinity is associated with sickness and deaths of dolphins and sea turtles, the exact



cause of death is not known,” Dr. Lawrence said. “The scientific question being addressed in this project is what causes the lesions and deaths of dolphins during exposure to low salinity? We know that characteristic pathologic lesions are found in the animals that die, and we know that bacteria and fungi are found in the lesions.”

Lawrence’s team within the College includes Dr. Tim Morgan, who is leading the pathologic analysis; Dr. Debra Moore, who is leading the toxicologic analysis; Dr. Bill Epperson, who is leading the epidemiologic analysis; and Dr. Attila Karsi, who is leading the genetic analysis. The IMMS, located in Gulfport, is a critical collaborator for MSU CVM in this project.

The team is focused on conducting in-depth analysis of tissues from dolphins and sea turtles that died in the 2019 freshwater incursion and comparing the findings to tissues analyzed from dolphins and sea turtles that died from other causes.

“To accomplish this, we will conduct pathologic analysis of the tissues and microbiologic analysis of the bacteria and fungi present in the lesions using modern sequencing methods,” Dr. Lawrence said.

Dr. Moby Solangi is the president and executive director of IMMS and has conducted pioneering research on dolphins in the wild and in human care.

“The Institute for Marine Mammal Studies partnered with MSU to respond to sick, injured, and dead dolphins and turtles and is conducting population dynamic studies to evaluate the recovery of dolphins and turtles in the wild and their habitat,” Solangi said. “Being on top of the food chain, dolphins serve as ‘canaries in the mine’ and are good biological indicators of the health of the ecosystem.”



2020 SCHOLARSHIPS & RECIPIENTS

Dr. Sam Adams Memorial Annual Scholarship

Recipient: Savannah Wicker

Addie Foundation Annual Scholarship in Veterinary Medicine

Recipients:

Gabrielle Alonzo	Caleb Glover	Reece Robertson
Laken Armstrong	Marissa Gonzalez	Gabrielle Ruble
Carter Arnold	Kaitlyn Hennessey	Aumbriel Schwirian
Brady Brown	Anne Elise Hertl	Taylor Sheley
Carli Bryant	Walker Hyche	Kim Simpson
Skyler Caldwell	Meagan Johnson	Tobi Ku Sones
Chris Campbell	Katherine Jones	Grace Stringer
Carly Campbell	Kaitlyn Junkin	Sydney Tamashiro
Hannah Carter	Mary Kerby	Kaylyn Tarver
Teresa Chapman	Kim Klunk	Anna Taylor
Kristen Chisolm	Shawn Kurtz	Hannah Urig
Erin Close	Kayla Lewis	Emily Vowell
Rebecca Cobb	Alexandra Loftis	Kiley Walker
Heather Daw	Whitney Maloney	Amy Wallace
Rachel Doenges	Tyler McMurray	Austin Whitmon
Gunnar Dunnam	Jessica Menig	Caitlin Wienzel
Casey Durfey	Morgan Myers	Jessica Wigley
AudreyAnne Estess	Keturah Ollie-Hayes	Kristen Williams
Tori Fields	Reece Paulk	Rachel Wilson
Lauren Glenn	Leslie Reed-Jones	Marguerite Yelverton

Drs. Mark and Carol Akin Equine Annual Scholarship

Recipient: Andrew Cox

Dr. Carol Akin Feline Medicine Scholarship

Recipient: Rachel McKinnerney

Hugh M. & Kathryn C. Arant, Sr. Scholarship in Veterinary Medicine

Recipient: Peter McGinn

Frank Austin & Class of 2012 Endowed Scholarship

Recipient: Peter McGinn

Arthur, Sammy, and Lulabelle Endowed Scholarship

Recipient: Haleigh Schreckengost

Arkansas Veterinary Medical Association Annual Scholarship

Recipients: Brandon Dailey, Kody Griffin, Jennifer Katelyn Barnett

Auxiliary to the Arkansas VMA Annual Scholarship

Recipient: Lensey Watson

Charles E. & Viola G. Bardsley Annual Scholarship in Veterinary Medicine

Recipient: Gabrielle Ruble

Paul Bass Annual Scholarship

Recipient: Elizabeth Mitchell

Bedenbaugh Scholarship in Veterinary Medicine

Recipient: Alexandra Frankovich, Amanda Fowler

Rona & Dan Belser Endowed Scholarship

Recipient: Madison Seifert

Briarwood Animal Hospital/Campbell G. Dale Memorial Annual Scholarship

Recipient: Travis Noto

William Tyler Brady Endowed Scholarship

Recipient: Alec Lucas

James D. & Kay B. Bryan Endowed Scholarship

Recipients: Nicholas Smith, Hannah Simmons

Buddy the Elf Scholarship

Recipient: Amanda Fowler

Dr. Robert Cooper Endowed Scholarship

Recipient: Erin Close

C. Edward Couvillion, DVM, PhD, Endowed Graduate Scholarship

Recipient: Ethan Woodyard

Georgiana and Kevin Cox Memorial Annual Scholarship

Recipient: Andrew Cox

Dr. Leon and Mrs. Sherrill Dale Annual Scholarship

Recipient: Townes Hillier

Dr. P. Mikell & Mary Cheek Hall Davis Beef Cattle Endowed Scholarship

Recipient: Josh Vowell

Dr. P. Mikell & Mary Cheek Hall Davis Beef Cattle-Early Entry Endowed Scholarship

Recipient: Janna Turner

Dr. P. Mikell & Mary Cheek Hall Davis Feline Medicine Endowed Scholarship

Recipient: Dallas Riley

Dr. P. Mikell & Mary Cheek Hall Davis Veterinary Technology Endowed Scholarship

Recipient: Taylor Vernon

Isabel M. Devine Endowed Scholarship

Recipients: Morgan Currin, Kristin Miller

Dr. Elizabeth B. Ezelle and Mr. Robert Ezelle Endowed Scholarship

Recipient: Joseph Evans

Paul Eggert International Education Travel Fund

Recipient: To be announced

Paul Farmer Memorial and Nutramax Laboratories Student Travel Fund

Recipient: To be announced

Morgan Freeman Endowment for Veterinary Medicine

Recipient: Teresa Chapman

Drs. Karen G. and Jeff D. Grady Endowed Scholarship

Recipient: Kylie Roux

Greenville Animal Clinic and Hospital/Dr. Thomas E. Royal Memorial Annual Scholarship

Recipient: Keturah Ollie-Hayes

Dr. Tip Hailey Scholarship

Recipient: Mimi Pelanne

Greenville Mississippi Kennel Club Annual Scholarship

Recipient: Taylor Sheley

Dr. A. Wayne Groce Alumni Society Annual Scholarship

Recipient: Kellie Pernula

Haynes-Carpenter Annual Scholarship

Recipient: Hannah Urig

International Veterinary Humanitarian Endowed Fund

Recipient: Courtney Ransom

Mac, Stephen, and Dava Imes Endowed Scholarship

Recipient: Ermelinda Brousseau

Clarice C. Jackson Memorial Scholarship

Recipients: Monica Peebles, Courtney Caugh

H. Kelly Jones SCAV Annual Scholarship

Recipient: Samantha Sanders

Dr. Margaret R. Kern Memorial Scholarship

Recipient: Leslie Reed-Jones

George B. Kerr Memorial Scholarship

Recipient: Meghan Courey, Natalie Daniel

The “Dempsey” & “Ruby” Lazar Endowed Scholarship.

Recipient: Brandon Dailey

Dr. Michael J. Lee Endowed Scholarship

Recipient: Meagan Johnson

Lehman Food Animal Endowed Scholarship

Recipient: Emerald Ford

Dr. Betsy Lipscomb Scholarship

Recipient: Danielle Overton

Mary Ann Long Endowed Scholarship

Recipient: Samantha Sanders, Bethany Foust, Sara Amport

Linda and Jim Longton Annual Scholarship

Recipient: Mimi Pelanne

Karen J. & John G. McCord Endowed Scholarship

Recipient: Lensey Watson

Hortense & Bill McClain Endowed Scholarship

Recipients: Jordan Ziegler, Abigail Willey

James Miller & First Class 1981 Endowed Scholarship

Recipient: Dallas Riley

Dr. Craig & Jennifer Mohaghegh Endowed Scholarship

Recipient: Zoey Stump

**Mississippi Farm Bureau Young Farmer Scholarship/
David Waide Scholarship:**

Recipients: Thad Skinner, Rachel Wilson

Mississippi Veterinary Medical Association Year 1 Scholarship:

Recipient: Caleb Glover

Mississippi Veterinary Medical Association Year 2 Scholarship:

Recipient: Hannah Carter

Mississippi Veterinary Medical Association Year 3 Scholarship:

Recipient: Lindsey Schmeiser

Mississippi Veterinary Medical Association**Dr. Harvey F. McCrory Memorial Scholarship**

Recipients: Teresa Chapman, Reece Robertson

**Mississippi Veterinary Medical Association Veterinary
Technician Scholarship (Junior Year)**

Recipient: Ashley Winters

**Mississippi Veterinary Medical Association Veterinary
Technician Scholarship (Senior Year)**

Recipient: Brooke Smith

Billy C. Mullican Endowed Scholarship

Recipients: Lauren Scott, Chelsea Geyer

Nestle’ Purina Award for Excellence in Companion Animal Nutrition

Recipient: Townes Hillier

Recycled Pets Are Best

Recipient: Lauren Bonee, Carly Pierson

Robert and Kathy Olsen Annual Scholarship

Recipient: Ethan Baggett

The Pet Hospitals Annual Scholarship

Recipient: Abbey Fleming

PetSmart Charities Scholarship:

Recipients: Haley Reichenbach, Kaylee Moog

Poco & Clio Gentle Doctor Award

Recipient: Skyler Caldwell

Dr. James F. Perkins Annual Scholarship in Veterinary Medicine

Recipient: Blanton Coleman

Thomas A. Plein Endowed Scholarship

Recipients: Bethsy Miletty-Rodriguez, Kaylynn Cantrell

Thomas A. Plein Veterinary Technology Endowed Scholarship

Recipient: Mary “Abbye” Blocker

Thomas C. Randolph, Jr. Memorial Scholarship

Recipients: Nicholas Smith, Hannah Simmons

**Jean & Walter W. Rotchild, Jr. Endowed Scholarship in
Veterinary Medicine**

Recipients: Elizabeth Czapor, Sophia Polnow

Kathleen and Cornelius Albert Ryan Endowed Fund

Recipient: Dr. Cari Chisholm

Linda “Big Lou” Schuerer Memorial Annual Scholarship

Recipient: Lauren Ingraham

Paul H. Schuerer Memorial Scholarship

Recipient: Shauna Davee

Greta Somerville Endowed Scholarship in Veterinary Medicine

Recipients: Kirstie Harris, Anika Eidson

**South Mississippi Veterinary Medical Association Annual
Scholarship**

Recipient: Savannah Matthews

Dr. Clyde E. Taylor Endowed Scholarship

Recipient: Austin Whitmon

The Pet Hospitals Annual Scholarship

Recipient: Abbey Fleming

Tupelo Small Animal Hospital Annual Scholarship

Recipient: Leslie Reed-Jones

Cynthia Lee & Carl Turner Annual Scholarship

Recipient: Heather Daw

**Vicksburg Kennel Club of Mississippi, Inc. Endowed
Scholarship**

Recipient: Shawn Kurtz

**West Virginia Veterinary Medical Association Annual
Scholarship**

Recipients: Hannah Finney, Lindsey Elswick

Dr. Alexander Lane “Bam” Williams Endowed Scholarship

Recipient: Hannah Haynes

Robert O. Williams Memorial Endowed Scholarship

Recipient: Delana McCoy

Bardsley Scholarship

Recipients: Karrigan Bowers, Kaitlyn Knuth, Hannah Pray, Skyler Turner, & Makayla Wiley of Mississippi; Megan Bright of Arkansas; Allison Brunner of Ohio; Ian Evans & Wesley Richards of Tennessee; Alicia Jackson, Anna Loyd, & Kelsey Miller of West Virginia; Gladys Reyes-Palacios & Jessica Sparks of South Carolina

International Education Endowed Travel Fund

Recipient: To Be Selected

GRANTS & CONTRACTS

AWARDED TO CVM FACULTY

EXTERNAL GRANTS

Carla Huston (PI). Mississippi Office of Homeland Security. K-9 Training Courses, Large Animal Emergency Response Courses. \$21,000

Mark Lawrence (PI), Daniel Peterson (CoPI), Debra Moore (CoPI), Attila Karsi (CoPI), William Epperson (CoPI). Mississippi Department of Marine Resources. Evaluation and Monitoring of Marine Mammal and Sea Turtle Abundance, Population Health, Habitat Delineation, and Restoration resulting from the opening of the Bonnet Carre Spillway. \$1,250,000

Barbara Kaplan (PI), Stephen Pruett (CoPI). Boehringer Ingelheim. Summer Research Experience Program for Veterinary Students 2020. \$10,000

Alison M. Lee (PI). American College of Veterinary Radiology. Computed tomography angiography of biliary disease and comparison of computed tomography to abdominal ultrasound in the diagnosis of biliary disease manifesting as acute abdominal pain in the dog. \$20,000

Cyprianna Swiderski (PI). Hilltop Biosciences. Equine Amnion Derivative Effects on Equine Respiratory System. \$27,959

Keun Seok Seo (PI). NoAH Biotech. Novel Antibiotics Using a Hexose-6-Phosphate Channel. \$128,478

Lanny W. Pace (PI). University of Georgia (USDA-APHIS). Enhancing the National Animal Health Laboratory Network (NAHLN) Diagnostic Capability through electronic reporting and transmission of data. \$36,781

Janice E. Chambers (PI). The Johns Hopkins University (Defense Threat Reduction Agency). The transport of neurotoxin antidotes across the blood-brain barrier. \$29,100 (add'l funding)

INTERNAL GRANTS

Barbara Kaplan (PI), Clare Brown (Co-PI). CVM ORGS. Immunohistochemical Localization of Cannabinoid Receptors in Canine Brain and Spleen Tissues. \$1,500

Seth Kettleman (PI). CVM ORGS. ExVivo Comparison of Bone-Screw-Fastners and Conventional Buttress Screws for Maintenance of Tibial Plateau Positioning and Biomechanical Stability After Locking Tibial Plateau Leveling Osteotomy Plate Fixation. \$2,000

Shanna Marroquin (PI). CVM ORGS. Radiographic, echocardiographic, and cardiac biomarker concentration changes with short-term immunosuppressive doses of oral prednisolone in cardiovascularly normal cells. \$2,000

Allison Salinger (PI). CVM ORGS. Ex Vivo biomechanical comparison of a novel "Bone-Screw Fastener" and traditional AO cortical bone screw for fixation of a simulated slab fracture in the equine third carpal bone. \$2,000

Ryan Gibson (PI). CVM ORGS. Accuracy of an equation to estimate bladder volume based on ultrasound measured dimensions of the bladder compared to the gold standard of urinary catheterization voided volume. \$2,000

Oscar Alas (PI). Accuracy of an equation to estimate bladder volume based on ultrasound measured dimensions of the bladder compared to the voided volume following natural micturition and residual urinary volume in normal dogs. \$2,000

Alexis Thompson (PI). CVM ORGS. Diagnostic Performance of Radial Immunodiffusion for Detecting Failed Transfer of Passive Maternal Immunity. \$2,000

Matthew Griffin (PI). CVM ORGS. Investigations into prevalence of latent Channel Catfish Virus genotypes on commercial catfish hatcheries and virulence in channel and channel x blue hybrid catfish. \$5,000

Amelia Woolums (PI). CVM ORGS. Engineered mRNA-expressed antibodies to treat or prevent Tritrichomonas foetus infection in bulls. \$5,000

CALENDAR of Events

Please be advised that due to the ongoing COVID-19 pandemic, all events and dates are subject to change. Please check the College's website for the most up-to-date information.

SEPTEMBER

Due to health concerns, the College will not formally celebrate Alumni Weekend this year. However, watch your inbox for a brief survey giving you the opportunity to provide input to help plan for Alumni Weekend 2021 and other events to be hosted by the College!

OCTOBER 16

2nd Annual Career Expo

Contact Julie Burt at jburt@cvm.msstate.edu for more info.

OCTOBER TBD

CVM All College Day

Virtual Dean's Council Meeting

CVM NOTES & NEWS

ALUMNI NEWS

Gretchen Ganas (DVM 2004) and husband BJ welcomed their third son, Isaac Edward, November 1, 2019. Welcoming the new baby are Caleb, 8, and Grayson, 6.

Kaylin McNulty (DVM 2019) and husband Anthony welcomed their first child, daughter Adelin Joy, January 29.

Katie Leech Ebers (DVM 2010) and husband Eric welcomed their second child, daughter Ellie, March 11. Welcoming the new baby is big brother Enoch, 2.

Claire Fellman (DVM 2011) and partner Joseph Mitchell welcomed their second child, son Elliott Cary Mitchell, May 2. Welcoming the new baby is big sister Ripley, 2.

Carondelet Grubb Nollner (DVM 1988) received the 2020 Outstanding Veterinarian of the Year award from the Tennessee Veterinary Medical Association. The award honors a practitioner who has been in private practice for at least 10 years and has outstanding contributions to veterinary standards, techniques, treatments, and practice methods. Financial success, client and colleague rapport, public service, and willingness to assist other practitioners are also considered. Dr. Nollner, who is board certified in canine and feline clinical practice and actively involved with the ABVP, owns Southern Crossing Animal Hospital in Memphis. She was nominated for the award by her associate and colleague Dr. Ashleigh Thomas White (DVM 2016.)

2020 PROMOTIONS & TENURE

Gary J. Burt – promoted to Clinical Professor

Jeb Cade – promoted to Associate Clinical Professor

Robin Fontenot – promoted to Associate Clinical Professor

Matthew Griffin – promoted to Research Professor

Kimberly Woodruff – promoted to Associate Clinical Professor

Betsy Swanson – promoted to Associate Professor with tenure

Cyprianna Swiderski – promoted to Professor

Alicia Olivier – received tenure

NOTE TO ALUMNI:

Please send us your news! We want to hear about and share new jobs and titles, marriages, births, and awards and recognition. Please direct this information to the attention of CVM Outreach Director Mel Thurlow at mel.thurlow@msstate.edu. You can also keep up with your fellow MSU CVM graduates on Facebook at facebook.com/alumnimsucvm.

HELP US STAY IN TOUCH!

Update your contact info quickly and easily by visiting vetmed.msstate.edu/alumni-friends/update-information and filling out the short form!



CVM OFFICE OF DEVELOPMENT NEWS

PRIVATE GIVING in a Pandemic

Over the past six months we have all been a part of a challenging and uncertain time. Everyone has stories on how Covid-19 has affected them. By this point, we all know someone who has had the coronavirus, and there are a number of people who will read this edition of Pegasus Press who have themselves had it. To say the world is different now is an understatement.

I have been unbelievably impressed with the administration at Mississippi State University and, specifically, with the leaders in the MSU College of Veterinary Medicine. Dean Hoblet and others have done a phenomenal job of making sure the education and veterinary services we provide are still held to the highest standard. Students, faculty and staff have continued to work meritoriously to fulfill the mission of the College to protect and improve the health and well-being of animals and humans.

The CVM has been on the forefront for MSU regarding safety protocols and procedures because the Wise Center never shut down. Social distancing, masks, increased sanitization, and

limiting access to outside visitors as a safety measure have been in place for months.

During this time, MSU completed the first billion dollar capital fundraising campaign in the state of Mississippi. In total, \$1.073 billion was raised, and the CVM accounted for nearly \$53 million of this. We now award a record number of scholarships, have significantly improved our building and have secured both outright and planned gifts that are moving programs like SafeHaven, research, shelter medicine and others forward. While 2020 is different than years past, the opportunity to make a difference in the lives of people and animals is the same. Thank you for your investment in veterinary medicine. Stay safe and healthy!

Best Regards,

Jimmy Kight
Director of Development

Giving + Getting the most from your assets

When most people think about making a charitable gift, they think of giving cash. While we welcome gifts of many kinds to help support Mississippi State University, there are ways you can give and benefit from a gift of other assets.

- *You can avoid paying capital gains tax if you give appreciated assets.*
- *You will receive a charitable deduction for your gift which can lower your tax bill.*
- *You can make a gift today while preserving your cash for immediate or future needs.*
- *You and your family can receive benefits such as lifetime income.*
- *You may be able to make greater gifts than you ever thought possible.*

For more information on how you can give and get the most from your assets, contact the MSU Foundation Office of Gift Planning.

MSU is an AA/EEO university.

Wes Gordon, Director of Gift Planning
(662) 325-3707 | wgordon@foundation.msstate.edu



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