

# SPOTLIGHT ON Mississippi State University Veterinary Medicine

Advancing animal health and welfare through research

## Mississippi State College of Veterinary Medicine research prepares one-health scientists

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### Research Highlights

The Mississippi State University College of Veterinary Medicine (MSU CVM) has a diverse portfolio of research to improve the health and well-being of animals, aid public health, and provide graduate and professional students training in research. The College has research strengths in aquatic animal health, population-based research in food and companion animals, immunology of bovine diseases, and environmental toxicology.

### Next-Generation Scientists

Veterinary students with a strong interest in a research career are eligible to enroll in our DVM/PhD program. This dual degree program began in 2009 and provides students an efficient path toward earning both a DVM and PhD degree. Students typically first complete the DVM portion of the program, graduating with their original classmates. Then they complete their research and graduate coursework over the next 3 years. There is time efficiency in the program by allowing 18 credit hours of overlap in the professional and graduate coursework. Students in the DVM/PhD program use elective time during the DVM program to take graduate courses or conduct research.

The College provides professional students exposure to research through the VetMed Research Scholars (VMRS) program. Stipends, travel funds, and research supplies are provided by Boehringer Ingelheim, NIH, the Office of Research and Graduate Studies, the Department of Comparative Biomedical Sciences, and the Global Center for Aquatic Health and Food Security. Twenty-two students participated in the VMRS program in 2022. Three of those conducted research in USDA Agricultural Research Service research laboratories. During the third and fourth years of professional study, students can participate in an approved research project with course credit through the Veterinary Student Research Initiative.

### Examples of One-Health Research

MSU CVM scientists are researching bovine anaplasmosis from a system dynamics perspective. The disease, endemic to the southeastern United States, causes mortality and production inefficiency in cow-calf herds. The emergence of anaplasmosis into northern regions of the country is facilitated by droughts



A number of graduate and residency programs are available through the MSU College of Veterinary Medicine, providing advanced educational opportunities in a broad range of biomedical and veterinary sciences.

that disperse cattle to endemic areas followed by repopulation of infected cattle when the rains return. Wildlife, such as whitetail deer, help to spread infected tick vectors from one cattle herd to another. Widespread use of antimicrobials to control anaplasmosis may select for antimicrobial-resistant microorganisms, which may ultimately be detrimental to human and animal health. Managing anaplasmosis and reducing a major use of antimicrobials in cow-calf production involves understanding this complex dynamic system through collaboration among epidemiologists, wildlife ecologists, geospatial scientists, and others.

In 2014, the United Nations Food and Agricultural Organization recognized the Global Center for Aquatic Health and Food Security (GCAHFS) as a United Nations Center of Knowledge in Aquatic Animal Health; we are the only veterinary college in the world to have received this designation. More recently, the GCAHFS was awarded the US Agency for International Development Feed the Future Innovation Lab for Fish. The mission of this project is to alleviate poverty and improve nutrition in vulnerable human populations throughout the world through the provision of fish, a nutrient-rich animal-source food. This program supports research and capacity-building projects in Nigeria, Bangladesh, Kenya, Zambia, Malawi, Ghana, and Cambodia.