

2018 Summer Research Program – Mentor List

FACULTY MEMBER	AREA OF RESEARCH
<p>Berrian, Amanda DVM, MPH, PhD Assistant Professor Department of Veterinary Preventive Medicine Berrian.4@osu.edu https://vet.osu.edu/about-us/people/amanda-berrian</p>	<ul style="list-style-type: none"> • Research area: I work in an agro-pastoral community in South Africa where I focus on infectious disease transmission between humans, domestic animals, and wildlife. • Using a community-based One Health approach we have conducted household surveys, health clinic surveillance, environmental sampling, wildlife monitoring, and educational interventions all in the name of community health promotion and natural resource conservation. • Prospective students should have a strong interest/background in public health, epidemiologic research (quantitative and qualitative), health education, and global health.
<p>Bowman, Andrew DVM, PhD Assistant Professor Department of Veterinary Preventive Medicine Bowman.214@osu.edu http://vet.osu.edu/AndrewBowman</p>	<ul style="list-style-type: none"> • During the summer months, we are particularly focused on zoonotic influenza A virus transmission across the animal-human interface at agricultural fairs • A summer research experience in our lab would include both collecting samples from animals in the field and performing virological and molecular diagnostic tests in the laboratory
<p>Burns, Teresa DVM, PhD Associate Professor Department of Veterinary Clinical Sciences Burns.402@osu.edu https://vet.osu.edu/burns-teresa</p>	<ul style="list-style-type: none"> • Laminitis • Endocrine diseases of horses
<p>Coutinho da Silva, Marco DVM, PhD Associate Professor-Clinical Department of Veterinary Clinical Sciences Coutinho-da-silva.1@osu.edu https://vet.osu.edu/coutinho-da-silva-marco</p>	<ul style="list-style-type: none"> • Comparative Theriogenology with focus on semen technologies and oocyte/embryo physiology
<p>Davis, Ian BVSc, PhD Associate Professor Department of Veterinary Biosciences</p>	<ul style="list-style-type: none"> • My research focuses on the role of alveolar type II (ATII) epithelial cells in the pathogenesis of influenza induced-acute lung injury and asthma. Potential projects

<p>Davis.2448@osu.edu https://vet.osu.edu/davis-ian</p>	<p>would be:</p> <ul style="list-style-type: none"> • 1) To determine the impact of influenza infection on ATII cell fatty acid oxidation and ATP production. • 2) To evaluate the impact of asthma on ATII cell energy metabolism.
<p>Durgam, Sushmitha BVSc, PhD Assistant Professor, Equine Surgery Department of Veterinary Clinical Sciences Durgam.3@osu.edu http://vet.osu.edu/about-us/people/sushmitha-durgam</p>	<ul style="list-style-type: none"> • Our laboratory is working to assess higher order collagen-elastin-cell structure of equine flexor tendons. • These histological studies will be correlated with endogenous cell phenotype and its effects of matrix biosynthesis. • Our laboratory uses techniques that include (but not limited to) confocal microscopy, protein and nucleic acid extraction, real time PCR.
<p>Fenger, Joelle DVM, PhD Assistant Professor – Oncology Department of Veterinary Clinical Sciences 444 VMAB Fenger.3@osu.edu http://vet.osu.edu/about-us/people/joelle-fenger</p>	<ul style="list-style-type: none"> • Our laboratory has been utilizing spontaneous models of cancer in dogs to study the comparative biology of canine and human cancers with the ultimate goal of identifying common molecular pathways that provide a foundation for translational clinical trials. • Ongoing projects in our laboratory involve investigating the PTEN/PI3K/AKT signaling pathway in osteosarcoma pathogenesis using in vitro cell culture systems and in vivo murine and canine spontaneous models of disease.
<p>Flint, Mark BVSc, PhD Clinical-Assistant Professor Zoo and Wildlife Conservation Medicine and Ecosystem Health Department of Veterinary Preventive Medicine Flint.71@osu.edu http://vet.osu.edu/about-us/people/mark-flint</p> <p>in collaboration at the Columbus Zoo and The Wilds</p>	<ul style="list-style-type: none"> • We have several projects that we are interested in pursuing including parasite burdens of hoof stock, freshwater turtle health, lorikeet enteritis prevention, advancing diagnostics of giraffes and sea urchin conservation. • Our area of research is applied conservation medicine.
<p>Garabed, Rebecca VMD, MPVM, PhD Associate Professor</p>	<ul style="list-style-type: none"> • This summer I am looking for students interested in surveying farmers in rural communities in Ohio to understand how

<p>Department of Veterinary Preventive Medicine Garabed.1@osu.edu https://vet.osu.edu/garabed-rebecca</p>	<p>they use antimicrobial medications in their cattle and how their usage patterns influence overall antimicrobial resistance in bacteria throughout livestock and wildlife in the community.</p> <ul style="list-style-type: none"> • Travel in Ohio is required.
<p>Gebreyes, Wondwossen DVM, PhD Professor and Executive Director of Global One Health Initiative Department of Veterinary Preventive Medicine Gebreyes.1@osu.edu https://vet.osu.edu/about-us/people/wondwossen-gebreyes</p>	<ul style="list-style-type: none"> • Antimicrobial resistance • Food safety • Infectious disease molecular epidemiology
<p>Goncalves Arruda, Andreia DVM, PhD Assistant Professor Department of Veterinary Preventive Medicine Goncalvesarruda.1@osu.edu https://vet.osu.edu/about-us/people/andreia-arruda</p>	<ul style="list-style-type: none"> • My area of research relies on the epidemiology of infectious diseases in food animal populations. • Projects available would involve investigating emerging or re-emerging swine/ poultry diseases that are important for producers and veterinarians, in order to better understand their spread, control and prevention within and between swine/ poultry farms in the U.S. Even though sometimes data-based, all my projects have a direct field application with components of networking and direct contact with the industry for feedback/ dissemination of results purposes.
<p>Habing, Greg DVM, PhD Assistant Professor Department of Veterinary Preventive Medicine Habing.4@osu.edu http://vet.osu.edu/habing-greg</p>	<ul style="list-style-type: none"> • The overall goal of our research program is to improve antimicrobial stewardship on dairy farms. • Summer research projects will work to measure antimicrobial use of dairy and calf production systems, and quantify the association with genotypic measures of antimicrobial resistance. • Project activities will include a combination of field and laboratory work.
<p>Hale, Vanessa MAT, DVM, PhD Assistant Professor Department of Veterinary Preventive Medicine Hale.502@osu.edu https://vet.osu.edu/about-us/people/vanessa-hale</p>	<ul style="list-style-type: none"> • The Hale lab examines the role of the gut microbiome in infectious diseases with the goal of understanding how the microbiome shapes disease susceptibility and pathogenesis. • We study diseases that affect humans and animals – including wildlife - and

	<p>evaluate disease processes at both individual and population health levels.</p>
<p>Hostnik, Eric - has already committed to a student DVM Assistant Professor Diagnostic Imaging Department of Veterinary Clinical Sciences erichostnik@gmail.com http://vet.osu.edu/about-us/people/eric-hostnik</p>	<ul style="list-style-type: none"> • Diagnostic imaging • Last summer worked with the Columbus Zoo on summer projects
<p>Kim, Sanggu PhD Assistant Professor Department of Veterinary Biosciences Kim.6477@osu.edu http://vet.osu.edu/about-us/people/sanggu-kim-0</p>	<ul style="list-style-type: none"> • We seek to gain systems-level insights into how the blood system operates in both normal and disease settings by applying a broad set of research skills in molecular and cellular biotechnology and computational biology. • In particular, we are interested in investigating how a vast number of functionally heterogeneous stem cells and their mature progeny work collectively to repopulate body organs in anti-HIV therapy settings. • We use both nonhuman primate and murine models to investigate the regulatory mechanisms, as well as the defects in cell- and tissue-level coordination that may arise during immune recovery from disease- or treatment-induced lymphopenia. • Specific research projects available for summer research program students include (1) developing and optimizing a novel cell/virus-tracking technology, and (2) investigating T-cell and HIV-1 dynamics in anti-HIV therapy settings.
<p>Kisseberth, William DVM, PhD Associate Professor Department of Veterinary Clinical Sciences Kisseberth.2@osu.edu http://vet.osu.edu/kisseberth-william</p>	<ul style="list-style-type: none"> • Comparative oncology • Cancer genetics • Experimental therapeutics • Lymphoma
<p>Liyanage, Namal</p>	<ul style="list-style-type: none"> • Understand the role of Natural Killer

<p>PhD Assistant Professor Department of Veterinary Biosciences Department of Microbial Infection & Immunity- College of Medicine Namal.liyanage@osumc.edu http://u.osu.edu/liyanagelab/</p>	<p>(NK)/Innate Lymphoid Cells (ILC) in the HIV pathogenesis and vaccines</p>
<p>Newbold, Georgina DVM Assistant Professor-Clinical (Ophthalmology) Department of Veterinary Clinical Sciences Newbold.16@osu.edu https://vet.osu.edu/about-us/people/georgina-newbold</p>	<ul style="list-style-type: none"> • The project I have in mind would involve collecting data from a variety of commercially available tonometry instruments (used to measure intraocular pressure) in a group of horses. • We would likely use a combination of horses from the research herd at Finley Farms and some clinical patients seen on the ophthalmology service. • The data would be collected first in non-sedated animals, followed by data collected after the horses have been sedated. • The data would then be analyzed for evidence of a statistical difference between the various instruments and level of sedation.
<p>Proudfoot, Katy PhD Assistant Professor Department of Veterinary Preventive Medicine Proudfoot.18@osu.edu https://vet.osu.edu/about-us/people/kathryn-proudfoot</p>	<ul style="list-style-type: none"> • My research focuses on using an understanding of animal behavior to build better maternity areas for cows at calving. • The student would be specifically be involved in a study assessing the impact of stocking density and a hiding space on the calving behavior of dairy cows. • The research would involve collecting behavioral data retrospectively from video (there is no on-farm component of this research). • The student would watch videos of cows undergoing labor and would record the social interactions and maternal behavior directed toward the calf under 4 different treatments: 1) low stocking density with a hide, 2) low stocking density without a hide, 3) high stocking density with a hide, and 4) high stocking density without a hide.
<p>Quimby, Jessica</p>	<ul style="list-style-type: none"> • Area of research: feline renal and

<p>DVM, PhD Associate Professor Department of Veterinary Clinical Sciences Quimby.19@osu.edu https://vet.osu.edu/about-us/people/jessica-quimby</p> <p>This project would be co-mentored by Dr. Adam Rudinsky</p>	<p>gastrointestinal health.</p> <ul style="list-style-type: none"> • This study will use surveys and observational equipment to document the daily defecation and urination habits of healthy cats. • The purpose of this study is to help owners better understand normal litter box habits. • This data can be used in the future as a baseline comparison to patients with disease.
<p>Rikihisa, Yasuko PhD Distinguished University Professor Department of Veterinary Biosciences Laboratory of Molecular, Cellular and Environmental Rickettsiology Rikihisa.1@osu.edu http://vet.osu.edu/YasukoRikihisa</p> <p>Lab web site: http://riki-lb1.vet.ohio-state.edu</p>	<ul style="list-style-type: none"> • Subversion of ehrlichial mechanisms in macrophages • Our previous study showed that gamma interferon (IFN-γ) added prior to or at early stage of infection inhibited infection of human monocytes with <i>E. chaffeensis</i>; however, after 24 h of infection, IFN-γ had no antiehrlichial effect. To test whether ehrlichial infection disrupts Janus kinase (Jak) and signal transducer and activator of transcription (Stat) signaling induced by IFN-γ, tyrosine phosphorylation of Stat1, Jak1, and Jak2 in <i>E. chaffeensis</i>-infected THP-1 cells was examined by immunoprecipitation followed by immunoblot analysis. Viable <i>E. chaffeensis</i> organisms blocked tyrosine phosphorylation of Stat1, Jak1, and Jak2 in response to IFN-γ within 30 min of infection. Similar results were obtained with human peripheral blood monocytes infected with <i>E. chaffeensis</i>. Heat or proteinase K treatment of <i>E. chaffeensis</i> abrogated the inhibitory effect, suggesting that protein factor(s) of <i>E. chaffeensis</i> is responsible for the inhibition of IFN-γ-induced tyrosine phosphorylation. Preincubation of <i>E. chaffeensis</i> with the Fab fragment of dog anti-<i>E. chaffeensis</i> immunoglobulin G also abrogated the inhibitory effect. On the other hand, monodansylcadaverine, which does not block binding but blocks internalization of ehrlichiae into macrophages, did not have any influence on the tyrosine

	<p>phosphorylation. These results indicate that ehrlichial binding to host cells is sufficient to inhibit Stat1 tyrosine phosphorylation induced by IFN-γ. Ehrlichia bind host cells using its surface protein EtpE and the host cell receptor, DNase X, our hypothesis, thus EtpE is mediating this inhibition. The summer project is to test his hypothesis using EtpE and DNase X KO mice.</p>
<p>Rudinsky, Adam DVM Assistant Professor Department of Veterinary Clinical Sciences Rudinsky.3@osu.edu https://vet.osu.edu/about-us/people/adam-rudinsky</p>	<ul style="list-style-type: none"> • My lab focuses on probiotics and effectiveness against uropathogenic E. coli. • This summer I have a funded project and samples collected to better characterize both feline uropathogenic E. coli by PCR clade and virulence analysis. • The student would gain experience in primer design/testing, PCR, and in vitro probiotic testing.
<p>Runcan, Erin DVM Assistant Professor-Clinical Department of Veterinary Clinical Sciences Runcan.1@osu.edu https://vet.osu.edu/runcan-erin</p>	<ul style="list-style-type: none"> • Interested in performing a clinically relevant study looking at semen collection frequency and cryopreservation parameters in male dogs
<p>Selmic, Laura BVetMed, MPH Assistant Professor Department of Veterinary Clinical Sciences Selmic.1@osu.edu https://vet.osu.edu/about-us/people/laura-selmic</p>	<ul style="list-style-type: none"> • Our group works to improve treatment outcomes for dogs undergoing surgery for cancer treatment. • Firstly, we work on assessment of outcomes through epidemiological studies to generate information about prognostic factors for patient outcome. • In addition, I work in the field of real-time surgical margin imaging utilizing optical imaging techniques like optical coherence tomography to give information about whether residual cancer cells are present at the surgical margins by assessing tissue microstructure. • The specific research projects available for summer research students include (1) individual animal metanalysis to identify prognostic factors in dogs undergoing

	<p>surgery for treatment of adrenal masses, and (2) validation of optical coherence tomographic imaging of surgical margin for canine mast cell tumors.</p>
<p>Sharma, Amit PhD Assistant Professor Department of Veterinary Biosciences Sharma.157@osu.edu https://vet.osu.edu/about-us/people/amit-sharma</p>	<ul style="list-style-type: none"> • My laboratory studies the host factors important for replication of chimeric SIV/HIV (SHIVs) in macaque lymphocytes. • We have performed RNASeq in macaque lymphocytes and identified key candidate genes that have the potential to limit SHIV replication. • The summer student will be involved in validating the contribution of some of these genes.
<p>Wittum, Thomas PhD Professor and Chair, Department of Veterinary Preventive Medicine A100S Sisson Hall Wittum.1@osu.edu http://vet.osu.edu/ThomasWittum</p>	<ul style="list-style-type: none"> • Infectious disease epidemiology • Zoonotic infectious diseases • Preharvest food safety • Veterinary antimicrobial use and the dissemination of resistant bacteria