2023 MU VRSP Mentor Profile Form

Mentor	**Rosalie Ierardi**, DVM, MS, DACVP (Clinical Instructor) **Ram Raghavan**, MPH, MS, PhD (Associate Professor)
Departmental bio web page.	**Rosalie Ierardi** http://vpbio.missouri.edu/faculty/Ierardi_Rosalie.htm **Ram Raghavan** http://vpbio.missouri.edu/faculty/Ram_Raghavan.htm
Other relevant web pages, as applicable. E.g., lab group/personal web page, Google Scholar/ORCiD profiles, others	A current list of Dr. Raghavan's publications is available at: https://www.scopus.com/authid/detail.uri?authorId=57188739081
Research interests.	Geographic Information Systems (GIS); Infectious Disease; Spatial Epidemiology; Vector-borne, Emerging & Zoonotic Diseases Dr. Ierardi's professional interests include infectious disease and pathology of livestock, particularly beef cattle, and vector-borne diseases, particularly bovine anaplasmosis (*A. marginale*) and bovine theileriosis (*T. orientalis*). Dr. Raghavan's interests include spatial epidemiology of infectious diseases, especially vector-borne diseases, and how geospatial approaches to data analysis can enhance human and animal health. He extensively uses Geographic Information Science (GIS) in his research alongside statistical modeling approaches designed to uncover how disease risk is distributed over space and time. His research also seeks to characterize the relationships between climate change and the spatial epidemiology of vector-borne diseases.
Dr. Ierardi's active projects.	These projects are components of Dr. Ierardi's PhD, conducted in close collaboration with Dr. Raghavan (PhD advisor/PI). "A cross-sectional study to determine prevalence, geographic distribution, and herd-level risk factors of bovine anaplasmosis in Missouri beef cattle". This involves testing serum samples from apparently healthy adult cows for antibodies against *Anaplasma marginale*. "Prevalence of *Anaplasma marginale* among host-seeking *Dermacentor variabilis* on beef cattle pastures in Missouri". This involves field collection of ticks,

	detection of *A. marginale* in tick extracts via PCR, and spatio-temporal modeling using Bayesian geospatial approaches.
Research team. E.g., graduate students, post docs, technicians, other scholars	Dr. Ierardi (most time available to serve as mentor), Dr. Raghavan, several undergraduate and graduate students working in Dr. Raghavan's One Health Lab.
About you… Education/training Personal information, as interested—e.g., hobbies, etc.	Rosalie Ierardi completed a bachelor's degree in Animal Science at the University of Illinois in 2012. She spent 10 months in Nepal as a U.S. Fulbright Student in 2012-2013, where she learned about challenges faced by dairy cattle/water buffalo producers in the villages of Kaski District. She completed her DVM, also at the University of Illinois, in 2017. Ierardi completed a residency in anatomic pathology, along with a Master of Science focused on epidemiology, at the University of Missouri in 2020. She is primarily interested in the pathology and epidemiology of infectious diseases of food animals, especially cattle. In her spare time, Ierardi enjoys playing piano, browsing thrift stores, and watching Star Trek. Ram Raghavan lived all over the world because of his parent's "government work". He has lived in the States for the last 20 years and collected ticks from all over Kansas, Missouri, Oklahoma, Arkansas. He is primarily interested in spatio-temporal epidemiology.

Mentor Profile

I am available to mentor students in career and life decisions, even if they do not choose research.

Very Untrue 1 --- 2 --- 3 --- 4 --- ⑤ Very True

My students are/can be involved in the creation/development of their projects.

Very Untrue 1 --- 2 --- 3 --- 4 --- ⑤ Very True

I expect students to contribute to manuscripts/publications.

Very Untrue 1 --- 2 --- ③ --- 4 --- 5 Very True
(This is welcomed, but not required.)

Students have the option to continue to work on this project.

Very Untrue 1 --- 2 --- 3 --- 4 --- ⑤ Very True

My students often work closely with a research team, e.g., lab tech or other students. Very Untrue 1 --- 2 --- 3 --- ④ --- 5 Very True	
I frequently touch base with my research team—e.g., students, technicians, etc. Very Untrue 1 --- 2 --- 3 --- 4 --- ⑤ Very True	
My mentoring style is very hands off. Very Untrue ① --- 2 --- 3 --- 4 --- 5 Very True	
Current/active project profile & timeline, including clinical vs. basic science.	The primary goal is to have this student involved in the tick collection/analysis project, "Prevalence of *Anaplasma marginale* among host-seeking *Dermacentor variabilis* on beef cattle pastures in Missouri". Responsibilities would be mostly during active tick season (March-August) and would include traveling to field sites with Dr. Ierardi to collect ticks, identifying ticks by species and life stage in the lab, performing data entry, and assisting with PCR. No prior experience is necessary; Dr. Ierardi and Dr. Raghavan will teach the student the necessary skills.
Lab structure, if applicable.	Dr. Raghavan's One Health Lab is located in 126 and 219-A, Connaway Hall. Student supervision will be carried out mostly by Dr. Ierardi. Other lab personnel include several undergraduate students and graduate students.
What does a typical day of research look like for VRSP scholars?	Field days will involve traveling with Dr. Ierardi to field sites around Missouri to collect ticks from pastures. This may sometimes require overnight lodging (provided). Days spent at the lab will involve tick identification by species and life stage under the microscope, cataloging and storing samples, data entry, and learning some basic molecular biology techniques (sample homogenization, DNA extraction, and PCR to detect genetic material of *Anaplasma marginale* in ticks). Students are encouraged to participate in lab discussions which can cover topics from tick biology, to epidemiology, to geographic information systems (GIS), to statistical modeling.

What does engagement look like for your lab/project?	No prior experience is necessary, all we want is for the student to be **excited to learn**! Punctuality, patience, and attention to detail are critical. Field work can sometimes involve long hours and/or hot weather. Student employees during the previous tick collection season were encouraged to offer suggestions on how to develop procedures, methods, and tools for data and sample management; learn about the biology of the ticks; learn about the disease (bovine anaplasmosis) we are studying; and become familiar with basic molecular biology techniques. Students are expected to prepare an abstract/poster/presentation and present it at CVM Research Day; support is available to attend a national meeting as well, such as, the American Association of Bovine Practitioners or the American Association of Veterinary Laboratory Diagnosticians.