

Project Title	Host Organization	Graduate Level	Openings	Project Description	Ideal dates of assignment	Location (City,Country)
Modeling Disease Consequences of Agricultural Intensification in Africa	EcoHealth Alliance	Undergraduate / Graduate	1	EcoHealth Alliance (EHA) requests an EcoHealth Net researcher to participate in work modeling the emergence of diseases in Africa as a consequence of agricultural intensification. The researcher will work with EHA scientists on a collaborative project with the Food and Agricultural Organization (FAO) to model health effects of future scenarios of livestock production, focusing on MERS, avian influenza, and emergence of new unknown diseases. The researcher will participate in this work through data analyses, simulation modeling, literature reviews, and writing policy recommendations. The researcher will be mentored in advanced skills in epidemiological modeling and data science. The researcher will be embedded in a team in a dynamic and multidisciplinary research environment, and be expected to participate in meetings and research discussions. The candidate should have strong data interpretation and writing skills, have completed graduate-level coursework in statistics and/or epidemiological or ecological modeling, and have experience using the R programming knowledge. The candidate should have interest and some knowledge of infectious diseases.	April-August 2017	New York, NY
Paramyxoviridae evolution	EcoHealth Alliance	Undergraduate / Graduate	1	The Researcher will work on a project to better understand the macro-evolutionary mechanisms that drive Paramyxoviridae diversification and transmission among mammals (with a focus on bats and rodents) at a global scale using molecular sequences. The Researcher is expected to perform phylogenetic reconstructions, co-phylogenetic reconciliation analysis and evolutionary rate/divergence time estimation to test evolutionary hypothesis. The Researcher will support the work through data collection, data analyses, and synthesis of information including the relevant literature. Requirements: Strong data interpretation and writing skills, knowledge of phylogenetics and phylogeography required, and basic experience with analyses and tools (e.g. programs for phylogenetic tree generation, BEAST, and/or phylogenetic analyses in R is a plus). The Candidate should also have an interest in infectious diseases, genetics, and/or spatial analysis.	April-August 2017	New York, NY
Regional surveillance of fruit bat viruses in Southeast Asia	Wuhan Institute of Virology, Chinese Academy of Sciences	Graduate Level	1	This project is based on the long term surveillance of bat-borne viruses in the host laboratory. It will focus on a regional surveillance of viruses in fruit bats in China, Thailand, Vietnam, Laos and Myanmar as well as the potential infection in humans through nucleic acid and serological methods. The aim is to understand the prevalence, diversity and evolution of fruit bats in the region. The graduate students with Molecular Biology or bioinformatics background are encouraged to apply.	June-August 2017	Wuhan, China
Receptor analysis of bat coronavirus using pseudovirus	Wuhan Institute of Virology, Chinese Academy of Sciences	Graduate Level	1	Receptor analysis is the first step to understand the virus entry in host cells. A large number of novel coronaviruses have been discovered in bats since the last decades. However, the information of receptor usage by these viruses is very limited due to the difficulty of virus culture in vitro. This project will focus on coronavirus receptor analysis using lentivirus based pseudovirus. The graduate students with Virology or Molecular Biology are encouraged to apply.	June-August 2017	Wuhan, China
Study of paramyxoviruses and filoviruses from flying foxes in Southeast Asia	Faculty of Medicine, Chulalongkorn University	Graduate Level	1	Bats harbor emerging infectious diseases. Filoviruses have been found in fruit bats from China. Paramyxovirus, a zoonotic virus, causes disease in livestock animals and humans. Nipah virus is a paramyxovirus whose reservoir host is fruit bats of the genus Pteropus. High prevalence of Nipah virus in Pteropus lylei bats in Thailand was observed in April and May. The student will join a field team collecting fruit bat urine specimens using non-invasive techniques. The presence of paramyxovirus, filovirus, and other viruses will be tested using PREDICT protocol. Specific primers will be used to test for Nipah virus in bat urine. Positive specimens will be further characterized at the glycoprotein and/or fusion region to study the binding capacity. Graduate students with Molecular Biology or Virology backgrounds are encouraged to apply.	April-August 2017	Bangkok, Thailand
Persistence of fecal shedding of Pseudogymnoascus destructans and evaluation of pooled guano as a reliable surveillance strategy in non-torpid bats	USGS National Wildlife Health Center	Undergraduate / Graduate	1	In the absence of directly sampling bats, pooled guano has been proposed as a possible alternative sampling strategy for surveillance of P. destructans (Pd), the causative agent of white-nose syndrome (WNS). Advantages of pooled guano sampling are that no direct handling of bats is required thus minimizing the risk of injury and disturbance. This sampling methodology has been applied successfully with pooled guano samples collected under a bridge near the area in King County, WA where a little brown bat collected in March 2016 was confirmed positive for WNS. What remains unclear is the length of time following emergence from an environmental reservoir that bats will continue to shed Pd in their guano. There is also uncertainty associated with the probability of false negatives for Pd detection using guano compared to skin swabs and how long Pd can be detected in guano exposed to above ground climate conditions. This proposed study will compare the probability of Pd detection between guano and skin swabs among individual bats under natural conditions and investigate whether pooled guano collected at summer roosts will be a reliable sampling methodology for Pd surveillance. Our primary objectives are to: 1. Evaluate the sensitivity and specificity of Pd detection in guano compared to skin swab by real-time PCR among individual bats collected on the outside landscape from WNS-affected regions and the recently identified cluster in King County, WA to assess the suitability of guano for reliable Pd surveillance. 2. Determine the duration of Pd detectability in guano compared to skin swabs from individual bats as well as from pooled guano collected on the outside landscape during spring and summer months. 3. Identify the most appropriate sampling strategy for Pd surveillance using pooled guano.	April-August 2017	Madison, WI
Modeling Epidemic Spillover and Spread	University of California, Davis	Undergraduate / Graduate	1	Student will join the EpiCenter for Disease Dynamics team to identify key characteristics of past outbreaks, including initial conditions and metrics associated with spillover and spread for select pathogens, to assist in development of models that can anticipate vulnerabilities in disease recognition and control. Previous knowledge of animal health, wildlife ecology, and infectious disease is desired and students should have a strong interest in epidemiology and analytical modeling. The project is for 8-10 weeks and will take place at the One Health Institute, in the School of Veterinary Medicine, University of California, Davis, California.	April-August 2017	Davis, California

Viral Discovery in Wildlife	Columbia University	Undergraduate / Graduate	1	The student will join a team of molecular virologists at the Center for Infection and Immunity (Columbia University) specializing in viral and pathogen discovery. Depending on the interests and expertise of the student, they will have the opportunity to work on a range of projects in the lab, including i) the ecological drivers of viral diversity, ii) viral discovery at the marine-terrestrial interface, or iii) discovery and characterization of viruses from primates, rodents and/or bats from global hotspots of emerging infectious disease (part of the USAID PREDICT project). Training will be focused on i) how to use viral discovery as a tool to address questions of disease emergence and ii) how to incorporate theory and idea from diverse disciplines (such as ecology) into the study of viral diversity. The project will last for 8 weeks and the applicants are expected to have strong laboratory skills already, though training will be given as necessary.	March-August 2017	New York, NY
Modelling the impacts of invasive species and pathogen emergence	EcoHealth Alliance	Graduate Level	1	EcoHealth Alliance (EHA) requests an EcoHealth Net researcher to participate in modelling the impacts of invasive species and pathogen emergence based on long-run economic growth models. The overall goal is to understand the mechanisms behind disease emergence using the concept of "creative - destruction" paradox caused by invasive species. The researcher will work with EHA scientists on a collaborative project with Mexican scientists. The researcher will participate in this work through data analyses, simulation modeling, literature reviews, and writing policy recommendations. The researcher will be mentored in advanced skills in epidemiological modeling and data science. The researcher will be embedded in a team in a dynamic and multidisciplinary research environment, including ecologists, economists and veterinarians, and be expected to participate in meetings and research discussions. The candidate should have strong data interpretation and writing skills, have completed graduate-level coursework in statistics and/or epidemiological or ecological modeling, and have experience using the R programming knowledge. The candidate should have interest and some knowledge of infectious diseases or invasive species.	March-August 2017	New York, NY
Using Biomarkers to assess physiological stress in wild animals	Tufts University	Undergraduate / Graduate	1	Physiological stress, especially chronic stress, can cause increased susceptibility to disease in free-ranging wildlife. Hormones (e.g. cortisol) are classically used as indicators of stress in wildlife. However, recent technological advances in analysis of biofluids in domestic animals are providing novel insights into physiology and disease pathogenesis in animals. Shed into biofluids are extracellular vesicles (EV), nanoscale membrane-bound structures loaded with biologically active substances (proteins, RNA, lipids) involved in cell-cell communication and pathology. As such, EV serve as a potentially novel source of biomarkers that could advance our understanding of the relationship between chronic stress and disease in wildlife. We will conduct a study to explore the feasibility and potential biological relevance of EVs as markers of chronic stress in wild birds. Specifically, we will compare circulating exosome derived miRNA in blood samples of wild birds that have acute injuries (e.g. broken wing), but are otherwise healthy, to birds that have undergone a long-term disease process and are in poor body condition (i.e. chronic stress). The funded student will manage a biorepository of blood samples from birds that are admitted to the Tufts Wildlife Clinic. As part of the biorepository project, the student will also collect tissue and blood samples from numerous species of birds. The collection and analysis of tissues in the future may inform the interpretation of the biomarker data.	June-August 2017	Grafton, MA
Field Studies of common loon health	Loon Preservation Committee-Tufts University	Undergraduate / Graduate	1	Tufts Wildlife Clinic has been studying common loons (<i>Gavia immer</i>) since 1987, identifying and quantifying natural and anthropogenic threats to loon health, trying to target specific conservation concerns, and collaborating with groups all around North America to educate the public about this iconic species and its role in the ecosystem. Seeking a student who would like to be involved in field studies of common loons in New Hampshire. Involvement will include related research projects such as hematology, threats from emerging parasitic and fungal disease, toxicology, etc. This person will be based primarily at the Loon Preservation Committee headquarters in Moultonboro, NH (http://www.loon.org), but will interact with Tufts Wildlife Clinic and other organizations. Project is 8-10 weeks.	June-August 2017	Moultonboro, NH
Morbidity and mortality of common loons	Cummings School of Veterinary Medicine at Tufts University	Undergraduate / Graduate	1	Tufts Wildlife Clinic has been studying common loons (<i>Gavia immer</i>) since 1987, identifying and quantifying natural and anthropogenic threats to loon health, trying to target specific conservation concerns, and collaborating with groups all around North America to educate the public about this iconic species and its role in the ecosystem. Duties will focus on working to perform gross necropsies and diagnostic imaging on cadavers of animals at BioDiversity Research in Portland, Maine as part of regional loon studies. This will include preserving specimens for additional studies (histopathology, toxicology, etc.). The student will also have an opportunity to carry out a specific research project. This project will be for 6-8 weeks. Candidates should have a sincere interest in pathology, anatomy and/or toxicology and good familiarity with Excel and data analysis. Interest and skills in photography and digital photo processing would be a big advantage.	May-July 2017	Portland, Maine