

Faculty: Amy Pickering, Assistant Professor, School of Engineering

Project Locations: Medford, MA and Nairobi, Kenya

Dates: mid-May – early August, 2019

Project Title: Zoonotic and environmental transmission pathways of antibiotic resistant bacteria in Kenyan households

Project Details: Antibiotic resistant infections are prone to treatment failure, increasing treatment and recovery time, health care costs, and mortality rates. Low- and middle-income countries (LMICs) are particularly at risk; a study among six LMICs found that more than half of community-acquired infections were resistant to antibiotics. This project will study human colonization with antibiotic resistant bacteria from exposure to contaminated drinking water, soil, and animal feces among peri-urban Kenyan households using metagenomic sequencing. The project will analyze matched sample sets from selected households consisting of drinking water, soil, poultry feces, and human stool samples by a combination of long-read and short-read metagenomic sequencing to match antibiotic resistance bacterial strains across sample types. This project is expected to elucidate predominant human exposure routes for antibiotic resistance in the household setting in Kenya.

Tasks and Responsibilities of Research Assistant:

The student will contribute to the following activities on the project:

1. Assistance with piloting sample collection and lab analysis protocols
2. Assistance with quality review of household electronic survey data collected
3. DNA extractions of environmental samples
4. Data management and analysis
5. Writing up of results and project progress

Qualifications:

Students with molecular lab work experience would be ideal.

Housing in Kenya:

Apartment in the same location as other expat project team members, including the graduate student mentor and a Fulbright fellow spending 12 months in Kenya on the project. The student will stay at an apartment with security guards on duty 24-7.