



The McMillan and Hoagland Labs are seeking to recruit two postdoctoral researchers at the intersection of soil microbial ecology, biogeochemistry, and plant stress physiology in the Colleges of Agriculture and Engineering at Purdue University. The positions are within the newly created Arequipa Nexus Institute for Food, Energy, Water, and the Environment and will be part of a cohort of other post docs and students working to understand the biophysical and societal impacts of water scarcity and environmental degradation on ecosystem ecology and agricultural productivity in the arid region of Southern Peru. Agriculture in this region is supported by irrigation with water often high in heavy metals leading to toxicity and reduced yield. Our goal is to determine how environmental and management factors affect microbial transformations and partitioning of heavy metals in soil and within plants. The successful applicants will have the opportunity to design research under this broad topic. We anticipate that the post docs will use a variety of methods to assess environmental conditions, microbial community composition (metagenomics), and ecological function (enzyme and metabolism assays).

While the positions are based at Purdue University, West Lafayette, IN USA, the candidates will engage in field and laboratory work and training activities in Peru, primarily in the Arequipa region, possibly for multi-week periods of time. The initial appointment will be for 1 year starting as early as March 1, 2019, with potential for a second year upon review. The Arequipa Nexus Institute for Food, Energy, Water, and the Environment is a collaboration between Purdue University and the Universidad Nacional de San Agustín (UNSA) in Arequipa, Peru. More information is available at: <https://www.purdue.edu/discoverypark/arequipa-nexus/en/index.php>

The post docs will be advised by Prof. Sara McMillan (<https://saramcmillan.weebly.com>) and Prof. Lori Hoagland (<https://www.purdue.edu/hla/sites/hoaglandlab/>) in the Depts. of Agricultural and Biological Engineering and Horticulture and Landscape Architecture, respectively. The McMillan and Hoagland Labs are equipped with tools for extracting, amplifying, and quantifying DNA/RNA in soil and plant samples, isolating and culturing microbial isolates, and conducting assays to quantify biogeochemical and ecological processes. Access to state-of-the-art plant growth facilities, wet chemistry laboratories, and Purdue's High Performance Computing Network for bioinformatics analyses are available. Hoagland and McMillan will work with the candidates to create Individual Development Plans, and identify opportunities for them to participate in workshops and other activities that will further develop their technical and professional skills.

Candidates should have recently completed their PhD, or expect to complete their degree by the start date in a program studying biogeochemistry and/or plant-soil-microbial relationships. Candidates must have a demonstrated record of scientific achievement, excellent verbal and written communication skills, and an interest in working in international and interdisciplinary environments addressing problems related to agroecosystem sustainability. The McMillan Lab position requires prior experience using laboratory assays and/or field measurements of biogeochemistry of terrestrial or wetland ecosystems. The Hoagland Lab position requires prior experience using biochemical and molecular tools to quantify the composition and activity of soil and plant microbiomes and characterize plant stress responses. Both positions also require strong quantitative and analytical skills, preferably R, Python, and/or Matlab. Past participation in international research and Spanish language skills are desirable.

Applicants should supply (a) a curriculum vitae, including a list of publications, (b) a statement of research interests and goals (maximum 2 pages) and (c) e-mail addresses of three references to: Sara McMillan (mcmill@purdue.edu) and Lori Hoagland (lhoaglan@purdue.edu). Application review will begin immediately.