



University of Pittsburgh

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To the Faculty Search Committee:

I am excited to present my application for Assistant Professor in the Department of Biological Sciences at Marquette University. As you will see, my research program cuts across disciplines, from environmental science to evolutionary medicine. I incorporate high-throughput sequencing and bioinformatics approaches with mechanistic bench work and field studies, which complements the strengths of the department. I currently have over 75% of my salary covered through external funding on microbiome-related research (roughly 25% from University of Pittsburgh Medical Center, 25% for consulting National Energy Technology Laboratory, and 25% consulting Burge Environmental, Inc) and will bring some of that funding with me to my new position. Through my existing collaborative relationships, the exciting potential for future collaborations, and the breadth of my research experience, I hope to rapidly create a well-funded and integrated program across departments and institutions at Marquette. I think Marquette is a great fit based on my expertise and my experience at a similar university. I currently serve on a graduate students' committee and teach Applied and Environmental Microbiology at Duquesne University. I have found the talented students, scope of research, and dedication to teaching invigorating and I think that this type of university is a perfect fit for my lab.

I will outline some of my research interests in the attached research statement, but because of my infatuation with microbiology and evolution, my collaborative nature, and my unique career path, my research interests are broad. I have deliberately sought out training in new research areas at each stage in my career to expand my knowledge and potential funding portfolio. I did my graduate work in a medical school at MUSC working on microbial physiology relating to applied and environmental microbiology with Dr. Hal May. I then won a prestigious postdoctoral fellowship from the DOE to work at Argonne National Laboratory and University of Chicago in microbiomes, biogeochemistry, and bioinformatics with Dr. Ken Kemner and Dr. Jack Gilbert. I am currently research faculty in another medical school at the University of Pittsburgh studying evolution, antibiotic resistance, and host-microbe interactions with Dr. Vaughn Cooper. In all of this work, a few guiding principles apply to all of the projects I have been involved with. The first is that the fundamental unit of most microbiology questions can be explained through an evolutionary lens and that relatedly, microbial ecology is essentially the same whether in the environment, engineered systems, or in the host. The second is that metabolism dictates the microbial interactions with other microbes and their hosts. Put simply, I am interested in the intersection of microbial metabolism and fitness and the ecological consequences that result from changes in both. I then apply these principles to multiple scales – studying mechanistic questions in lab-based microcosms and host or ecosystem scale trends with molecular and omics tools. My research focuses on these fundamental principles and will be the focus of all the projects I pursue throughout my career.

In addition to my research, I am unconditionally committed to mentorship and teaching. I believe that educating the next generations of scientists will be the most important thing I accomplish in my career. As I have in the past, I plan to continue outreach to middle school and high school students, particularly at low income schools. In addition, mentoring undergraduates, graduate students, and postdocs is an exceptionally rewarding part of my daily routine at the University of Pittsburgh. As an example of my success in this mentorship, my most recent undergraduate mentee was awarded an NSF graduate research fellowship to pursue a PhD at Virginia Tech.

I am extremely excited by the opportunity to help build a new program of research, education, and industrial partnership on campus, and to work alongside a diverse group of colleagues to create exciting new opportunities for our science. Thank you for your consideration.

Yours Sincerely,

A handwritten signature in black ink, appearing to read 'C Marshall', written in a cursive style.

Chris Marshall, PhD
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Department of Microbiology and Molecular Genetics
University of Pittsburgh