

Elizabeth A. McDaniel

MICROBIOLOGY PHD STUDENT

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Dr. Eric Bapteste

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UNIVERSITE PIERRE ET MARIE CURIE

Dear Dr. Bapteste,

I am writing you to apply to the summer course on “Networks and Evolution” taking place in June 2018. I am a PhD student in the Microbiology Doctoral Training Program at the University of Wisconsin-Madison in Madison, WI, USA studying bacterial communities of freshwater and engineered wastewater systems in Katherine McMahon’s lab. I am a computationally minded biologist with research interests in population genomics and evolutionary dynamics. The McMahon lab harbors a wealth of long-term metagenomic datasets from numerous Wisconsin lakes and engineered wastewater bioreactors. I am interested in using these time series datasets to answer questions about population ecology and evolution through time. I currently use comparative genomics and phylogenetic approaches to understand microbially mediated biogeochemical processes in lakes and clade-level diversity dynamics in engineered wastewater bioreactors. Attending the summer course on “Networks and Evolution” will provide a solid foundation to apply network-based approaches to my work to better understand these large-scale diversity studies.

In addition to my Bachelor of Science in biology, my background is in theoretical statistics and programming. I am proficient in the Python, R, and Bash languages in addition to experience with the Linux/Unix environment. I am also committed to open and reproducible science in my computational practices.

In addition to gaining experience in network analyses to apply to my own research, I am extremely motivated to share this knowledge with the computational biology community at UW-Madison. I currently co-chair the Computational Biology, Ecology, and Evolution (ComBEE) study group on campus. ComBEE is a peer-led, discussion based group that meets weekly to discuss current tools in the Python and R languages. This past year, I attended a workshop at the University of Chicago to learn the Anvi’o software on visualizing and analyzing ‘omics data. I then helped lead a workshop for the ComBEE study group at UW-Madison that taught the basics of metagenomic binning techniques and the Anvi’o software workflow.

I believe my background in statistics, programming, and microbial ecology in addition to my motivation to share my newfound knowledge in network theory with the UW-Madison campus make me an excellent candidate for attending this course.

Sincerely,

Elizabeth A. McDaniel

Attached: Curriculum Vitae