Elizabeth McDaniel

Microbiology PhD Student

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Education

University of Wisconsin – Madison *Aug. 2016-present*

Ph.D. student in the Microbiology Doctoral Training Program

- Laboratory of Dr. Katherine McMahon, Department of Bacteriology

University of Arkansas – Fayetteville *Aug. 2012-May 2016*

Bachelor of Science in Biology with Statistics Minor, Cum Laude Honors

- GPA: 3.71/4.0
- Honors Thesis: Natural Variation of the Ena1p Sodium Pump in *S. cerevisiae*

Research Experience

McMahon Lab – University of Wisconsin – Madison *Jan. 2017 - present*

Graduate research assistant in the laboratory of Dr. Katherine McMahon investigating bacterial communities of engineered wastewater systems. I use a combination of bioinformatics approaches and enrichment culture techniques to probe the diversity, functional activity and population dynamics of microorganisms that perform biological nutrient removal and interrogate microbial interactions.

Lewis Lab – University of Arkansas – Fayetteville *Aug. 2013-Aug. 2016*

Undergraduate research assistant in the laboratory of Dr. Jeffrey Lewis studying the natural variation of stress defense mechanisms in the budding yeast *Saccharomyces cerevisiae.*

Broach Lab – Penn State Hershey College of Medicine *May-Aug. 2014*

Intern in the Summer Undergraduate Research Internship Program in the laboratory of Dr. James Broach studying the interactions and movements of chromosomes during quiescence in the budding yeast *S. cerevisiae.*

Publications

1. McDaniel E.A., Stuecker T.N., Veluvolu M., Gasch A.P., Lewis J.A. **Independent Mechanisms for Acquired Salt Tolerance versus Growth Resumption Induced by Mild Ethanol Pretreatment in *Saccharomyces cerevisiae*.** mSphere. Nov 2018, 3 (6) e00574-18; **DOI:** 10.1128/mSphere.00574-18

Oral Presentations

3. McDaniel, E.A., Moya, F., Camejo, P., He, S., McMahon, K.D. Integrating Anvi'o Tools into your Workflow: Insights from a Biological Nutrient Removal (BNR) System. Resolving Microbial Communities at Strain-Level Symposium. Penryn, UK. *August 2018.*

2. McDaniel, E.A., Stuecker, T.N., Elkon, I.M., Gasch, A.P., Lewis, J.A. Natural Variation in Yeast Uncovers Novel Regulation of the Ena1p Sodium Pump. Southeastern Regional Yeast Meeting. Tuscaloosa, AL. *March 2016.*

1. McDaniel, E.A. Stuecker, T.N., Elkon, I.M., Gasch, A.P., Lewis, J.A. Natural Variation in Yeast Uncovers Novel Regulation of the Ena1p Sodium Pump. Southeastern Regional Yeast Meeting. Little Rock, AR. *March 2015.*

Poster Presentations

10. McMahon Lab. Microbiomes of Freshwater Lakes and Engineered Wastewater Systems. Water@UW Syposium. Madison, WI. *Oct. 2018.* (Poster constructed and presented on behalf of McMahon Lab)

9. McDaniel, E.A. Peterson, B. Stevens, S.L.R., Krabbenhoft, D., McMahon, K.D. Expanded Phylogenetic and Metabolic Diversity of Microbial Mercury Methylation. Department of Bacteriology Raper Symposium. Madison, WI. *Sept. 2018.*

8. McDaniel, E.A. Peterson, B. Stevens, S.L.R., Krabbenhoft, D., McMahon, K.D. Comparative Genomics of Microbial Mercury Methylation. International Society of Microbial Ecology Meeting. Leipzig, Germany. *Aug. 2018.*

7. McDaniel, E.A. Moya, F. Camejo, P. He, S. McMahon, K.D. Long-Term Population Dynamics of '*Candidatus* Accumulibacter phosphatis' in Enhanced Biological Phosphorus Removal Sequencing-Batch Reactors. Population, Evolutionary, Quantitative Genetics Conference. Madison, WI. *May 2018.*

6. McDaniel, E.A. Peterson, B. Stevens, S.L.R., Krabbenhoft, D., McMahon, K.D. Comparative Genomics of Microbial Methylmercury Production. Madison Microbiome Meeting. Madison, WI. *April 2018.*

5. McDaniel, E.A. Peterson, B. Stevens, S.L.R., Krabbenhoft, D., McMahon, K.D. Comparative Genomics of Microbial Methylmercury Production. Joint Genome Institute User Meeting: Genomics of Energy and Environment. San Francisco, CA. *Mar. 2018*

4. McDaniel, E.A. Stuecker, T.N., Elkon, I.M., Gasch, A.P., Lewis, J.A. Natural Variation in Yeast Uncovers Novel Regulation of the Ena1p Sodium Pump. Arkansas IDeA Network of Biomedical Research Excellence Meeting. Fayetteville, AR. *Nov. 2015*

3. McDaniel, E.A. Stuecker, T.N., Elkon, I.M., Gasch, A.P., Lewis, J.A. Natural Variation in Yeast Uncovers Novel Regulation of the Ena1p Sodium Pump. 27th International Conference on Yeast Genetics and Molecular Biology. Levico, Terme, Trentino, Italy. *Sept. 2015*

2. McDaniel, E.A**.** Stuecker, T.N., Elkon, I.M., Gasch, A.P., Lewis, J.A. Natural Variation in Yeast Uncovers Novel Regulation of the Ena1p Sodium Pump. South Central Branch of the American Society for Microbiology Joint Meeting. Fayetteville, AR. *Sept. 2014*

1. McDaniel, E.A. Rutledge, M.T., Broach, J.R. Chromosome Interactions in Quiescent Yeast. Penn State Hershey Summer Undergraduate Research Internship Programs Symposium. Hershey, PA. *Aug. 2014.*

Honors and Awards

Department of Bacteriology Betley-Allen Fellowship Award *May 2019*
University of Wisconsin-Madison Student Travel Grant - $600 *April 2019*
Microbiology Doctoral Training Program Travel Award - $1000 *May 2018*
Department of Bacteriology Travel Award - $1000 *May 2018*
Southeastern Regional Yeast Meeting Travel Award - $250 *Mar. 2016*
University of Arkansas Honors College Research Grant - $1200 *Jan. 2016*
University of Arkansas Honors College Travel Grant - $1200 *Aug. 2015*
Southeastern Regional Yeast Meeting Travel Award - $250 *Mar. 2015*
University of Arkansas Honors College Research Grant - $2500 *Jan. 2015*
University of Arkansas Academic Scholarship - $2500 *2014-2015*
ASM South Central Branch Meeting 2nd Place Poster Award *Sept. 2014*
University of Arkansas Academic Scholarship - $1000 *2013-2014*
University of Arkansas Symphony Orchestra Scholarship - $1000 *2012-2016*
University of Arkansas New Arkansan Non-Resident Tuition Award - $39,040

Teaching, Mentoring, and Service

Bioinformatics Workshops (Teaching Assistant/Created Materials)
Carpentries Badged Instructor as of June 2019
Data Carpentry Introduction to R Instructor *June 2019*
Software Carpentry Helper *June 2019*
Microbiome & Data Science Hubs Git/Github Pages Workshop *March 2019*
Resolving Microbial Communities at Strain-Level Resolution Symposium *Aug. 2018*
ComBEE Git/Github Pages Workshop *Sept. 2017*
ComBEE Anvi'o Workshop *May 2017*
ComBEE Git Workshop *March 2017*

McMahon Lab Mentoring *2017-present*
Graduate Student Mentor for Summer REUs and Undergraduate Research Students
- Kaela Amundson: Characterization and Enrichment of Microorganisms Capable of External Electron Transfer. *Fall 2017-Spring 2018. Currently pursuing a Ph.D. in Microbiology at Colorado State University*
- Kali Denis: Time-Series Analysis of Under-Ice Freshwater Bacterial Communities. *Spring 2018.*
- EBPR Reactor Maintenance Team: Oversaw **6** undergraduate students for maintenance of wastewater reactors. *Fall 2018-current.*

Computational Biology, Ecology, and Evolution (ComBEE) Study Group
Co-Chair *Jan. 2017-present*
ComBEE is a peer-led group for computational biology researchers on the UW-Madison campus. We hold bi-weekly R and Python study group sessions and monthly meetings on current research topics in ecology and evolution.

- Organize peer-led discussion on the R and Python languages
- Facilitate monthly meetings in which a postdoc/faculty member gives a talk on their research.

Microbiology 304: Biology of Microorganisms Laboratory TA *Spring 2018*
BIOL 2323: General Genetics Drill Instructor *Spring 2015*
University of Arkansas Office of Admissions Ambassador *Aug. 2013-Dec. 2015*

Professional Development

DELTA Evidence-Based STEM Teaching Course *Summer 2019*
DELTA Research Mentor Training *Summer 2019*
Carpentries Instructor Training *April 2019*
Microbial Genomics and Metagenomics Workshop, FISABIO *June 2017*
Anvi'o Workshop, University of Chicago *April 2017*
Data Carpentry Workshop, University of Wisconsin-Madison *Jan. 2017*

Technical and Laboratory Skills

Programming Python, R/RStudio, Bash, SQL, Git/Github/GH-pages, Markdown, High Throughput Computing (HT-Condor), Reproducible Research
Analytical Comparative Genomics/Metagenomics, Amplicon Sequencing QC and Analysis, Genome Annotation and Assembly
Laboratory Molecular Cloning, DNA Extraction, qPCR, Primer Design, Flow Cytometry, Wastewater Reactor (Chemostat) Maintenance and Microbial Community Enrichment