

Elizabeth McDaniel

Microbiology Ph.D. 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 in freshwater ecosystems and engineered wastewater systems. I use a combination of bioinformatics approaches and enrichment culture techniques to probe the diversity, functional activity and population dynamics of environmentally significant microorganisms.

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 Symposium. 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

Microbiology Doctoral Training Program Travel Award - \$1000	<i>May 2018</i>
Department of Bacteriology Travel Award - \$1000	<i>May 2018</i>
Southeastern Regional Yeast Meeting Travel Award - \$250	<i>Mar. 2016</i>
University of Arkansas Honors College Research Grant - \$1200	<i>Jan. 2016</i>
University of Arkansas Honors College Travel Grant - \$1200	<i>Aug. 2015</i>
Southeastern Regional Yeast Meeting Travel Award - \$250	<i>Mar. 2015</i>
University of Arkansas Honors College Research Grant - \$2500	<i>Jan. 2015</i>
University of Arkansas Academic Scholarship - \$2500	<i>2014-2015</i>
ASM South Central Branch Meeting 2nd Place Poster Award	<i>Sept. 2014</i>
University of Arkansas Academic Scholarship - \$1000	<i>2013-2014</i>
University of Arkansas Symphony Orchestra Scholarship - \$1000	<i>2012-2016</i>
University of Arkansas New Arkansan Non-Resident Tuition Award - \$39,040	

Teaching, Mentoring, and Service

Bioinformatics Workshops (Teaching Assistant/Created Materials)

Microbiome & Data Science Hub Git/Github Pages Workshop	<i>March 2019</i>
Resolving Microbial Communities at Strain-Level Resolution Symposium	<i>Aug. 2018</i>
ComBEE Git/Github Pages Workshop	<i>Sept. 2017</i>
ComBEE Anvi'o Workshop	<i>May 2017</i>
ComBEE Git Workshop	<i>March 2017</i>

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

Spring 2018

Teaching Assistant

- Prepared lecture materials on the background, significance, and execution of experiments twice a week

- Assisted students with experiments and provided feedback on techniques, scientific analyses, and writing

McMahon Lab Mentoring

2017-present

Graduate Student Mentor for REUs, Undergraduate Interns, and High School 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.*

BIOL 2323: General Genetics

Spring 2015

Drill Instructor

- Instructor and leader of biweekly review sessions for an undergraduate General Genetics course
- Prepared overview of lecture materials weekly and led exam study guide review sessions

University of Arkansas Office of Admissions

Aug. 2013-Dec. 2015

Student Ambassador

- Volunteered 2 hours a week guiding tours of the University of Arkansas campus and housing options to prospective students

Professional Development

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