

Elizabeth McDaniel
Microbiology PhD Student
(214)546-9748 | emcdaniel@wisc.edu | [elizabethmcd.github.io](https://github.com/elizabethmcd)

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

7. McDaniel, E.A., Moya, F.M., van Steenbrugge, J., Oyserman, B.O., McMahon, K.D. Examining Long-Term Microbial Population Dynamics At Multiple Scales Using Enrichment Bioreactors As Model Ecosystems. Microbial Ecology and Water Engineering conference. Hiroshima, Japan. Nov. 2019.

6. McDaniel, E.A., Peterson, B., Tran, P., Anantharaman, K., Krabbenhofft, D., McMahon, K.D. Expanded Phylogenetic Diversity and Metabolic Flexibility of Microbial Mercury Methylation. Evolution Series Seminar. University of Wisconsin – Madison. Sept. 2019.

5. McDaniel, E.A., van Steenbrugge, J., Oyserman, B.O., Moya, F., McMahon K.D. Eco-systems biology of a Microbial Community Performing Enhanced Biological Phosphorus Removal. Microbiology Doctoral Training Program Seminar. University of Wisconsin – Madison. Nov. 2018.

4. McDaniel, E.A., McMahon, K.D. Bacterial Communities of Lab-Scale Wastewater Enrichments. UW-Madison Bioscience Opportunities Preview Weekend Lightning Talk. Sept. 2018.

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. *Aug. 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

O.N. Allen Soil and Environmental Microbiology Small Grants Award - \$3,290
Department of Bacteriology Betley-Allen Fellowship Award

August 2019
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 2 nd 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	2012-2016

Teaching, Mentoring, and Service

Bioinformatics Workshops (Teaching Assistant/Created Materials)

Carpentries Genomics Introduction to R Instructor	August 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.

Microbiology Doctoral Training Program Admissions Committee	Fall 2019
Data Science Hub Research Bazaar Planning Committee	Fall 2019
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 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