

Kelly C. Wrighton

Department of Microbiology
The Ohio State University
Columbus, OH 43210
<https://u.osu.edu/microbe/>

kwrighton@gmail.com
(510) 409-6723

Professional Experience

Current-2013 Assistant Professor, The Ohio State University, Dept. of Microbiology
2013-2010 Postdoctoral researcher, University of California Berkeley, Dept. Earth and Planetary Science
2003-2005 Research Microbiologist, Chevron Corporation, Guadalupe, CA
2002-2003 Clinical Microbiologist, XOMA Pharmaceuticals, Berkeley, CA
2001-2003 Research and Development Microbiologist, Hardy Diagnostics, Santa Maria, CA

Education

PhD Microbiology, University of California Berkeley, April 2010
MS Biological Science (Ecology), California Polytechnic State University, San Luis Obispo, June 2005
BS Microbiology, California Polytechnic State University, San Luis Obispo, June 2001

Awards and Honors

Elected co-Director of the OSU Infectious Disease Institute- Microbial Communities Program
2017-2019 fostering collaborative research between OSU medical school and college of Arts
and Sciences.
www.idi.osu.edu

Kavli Frontiers of Science, Fellow 2016 Germany
Sponsored by US National Academy of Sciences and the Kavli Foundation

Ohio State University Faculty Mentor Award, 2016
In recognition of my support for undergraduate education at OSU
Sponsored by OSU Mortar Board and Sphinx Honor Societies

Kavli Frontiers of Science, Fellow 2015 India
Sponsored by US National Academy of Sciences and the Kavli Foundation

Outstanding Instructor, University of California Berkeley
In recognition of exceptional achievements for Microbial Ecology (ESPM 116)

National Registry of Certified Microbiologists (NRCM), American Society of Microbiology
Subject: Pharmaceutical and medical devices

Millis-Colwell Postgraduate Grant recipient, 2009
American Society of Microbiology

Full Academic Graduate Fellowship, Chang-Lin Tien Scholars Biodiversity Award, 2009-2011
University California Berkeley, Environmental Sciences and Biodiversity

Research funding

*Summary since Fall 2013: Contributed to \$9.3M in OSU research funding (\$3.3M to the Wrighton Laboratory)
Funding sources include industry, state, and federal (NSF, DOE, NIH) including a recently awarded DOE early
career award (2017-2021) for microbiomes in soils and NSF early career award for biodegradation of plant
biomass using soil microbiomes.
Instrumentation awards extend research funding, only PI led reported (estimated value \$985,000)*

Awarded and Active Grants

Department of Energy- Early Career Award. Biological and Environmental Research.

Awarded September 1, 2017-2022

Genomes to ecosystem function: Targeting critical knowledge gaps in soil methanogenesis and translation to updated global biogeochemical models

KC Wrighton (sole PI); \$797,761

National Science Foundation. Molecular and Cellular Biology- Early Career Award.

Awarded but not officially announced, grant begins May 2018-May 2023

Unlocking Microbial Condensed Tannin Resistance Mechanisms: Scaling from Enzymes to Biomes

KC Wrighton (sole PI); \$941,282

Department of Energy. Subsurface Biological Research. 2017-2018-

Exploratory grant to collect preliminary data for future grant.

Accounting for Hydrological and Microbial Processes on Greenhouse Gas Budgets from River Systems

KC Wrighton (PI), G Bohrer, J Stegen; \$200,000 (\$100,000 Wrighton)

Ohio Water Development Authority, 2017-2019.

Predictive modeling of nutrient and carbon processing in wetlands – linking hydrology, water quality and microbial processes

G Bohrer (PI), **KC Wrighton**, L. Kinsman-Costello; \$400,000 (\$130,000 Wrighton)

National Science Foundation, Dimensions of Biodiversity. 2014-2018.

Microbial Biodiversity and Functionality in Deep Shale and its Interfaces

P Mouser (PI), **KC Wrighton**, S Sharma, D Cole, MJ Wilkins;

\$1,645,610 (\$499,827 Wrighton)

National Institutes of Health. Allergy and Infections. 2014-2018

Salmonella, colonization resistance, and fructose-asparagine

B Ahmer (multi-PI), VH Wysocki (multi-PI), V Gopalan (multi-PI), **KC Wrighton** (multi-PI)

\$2,600,000 (\$240,000 Wrighton)

National Institutes of Health. Diabetes, Digestive, Kidney Diseases. 2016-2020

Alternative routes of gut microbial methylamine metabolism that may limit trimethylamine N-oxide, a trigger for atherosclerosis

J Krzycki (PI), **KC Wrighton**, D Ferguson; \$2,430,028, (\$500,000 Wrighton)

DOW Chemical-University Partnership Grant. April 2017-2020

Leveraging microbial metabolisms to influence production chemistry and well longevity during energy extraction

MJ Wilkins (PI) and **KC Wrighton**; \$245,729 Total Award (\$125,147 to Wrighton) each year for 3 years

Grants Submitted, Pending

National Science Foundation. Advances in Biological Infrastructure. September 2017

Next generation informatics to elucidate viral ecology and ecosystem impacts in nature.

MB Sullivan (PI) and **KC Wrighton**; \$1,123,135

Awarded and Active Instrumentation Grants (only Wrighton as PI included)

Department of Energy. FICUS. 2016-2019

Deciphering controls on plant decomposition in Arctic ecosystems: Identifying unknown microbial condensed tannin degradation pathways

KC Wrighton (PI), A Hagerman, D Spalinger

Value \$488,000 for 16S rRNA, metagenomes, LC-MS, NMR, and metaproteomics

Department of Energy, Environmental Molecular Science Laboratory, 2014

High-resolution, parallel measurements of wetland organic carbon and microbial community metabolism under changing redox conditions

KC Wrighton (PI), CS Miller, and PJ Mouser

Value \$142,000 for FT ICR MS and porewater metabolite analyses

Department of Energy, Joint Genome Institute. Small scale Community Sequencing Project. 2015
Identifying key genomes and metabolisms responsible for near-surface methane cycling in wetlands

KC Wrighton (PI), C.S. Miller

Value of \$30,000 for metagenomic sequencing

Department of Energy. Large Scale Community Sequencing Project. 2015-2018

Life in the extreme deep terrestrial subsurface: microbial metabolism before and after shale gas extraction

KC Wrighton (PI), PJ Mouser, MJ Wilkins

Value \$250,000 for 16S rRNA, metagenomes, isolate genomes, viromes, single cell, and metatranscriptome

Awarded and expired grants

Ohio Water Development Authority, 2014-2016.

Opening the microbial black box: identifying microbial enzymatic control of carbon stability in Ohio Wetlands

KC Wrighton (PI) and G Bohrer; \$399,709 (\$289,000 Wrighton)

Gas Technology Institute. 2016-2017

Fee for service: Microbial communities in gas wells in Texas

KC Wrighton (sole PI); \$26,000

Department of Energy. FICUS (JGI/EMSL). 2014-2016

“Microbial controls on biogeochemical cycling in deep subsurface shale carbon reservoirs”
for genomic, proteomic, microscopic and carbon analyses.

KC Wrighton (PI), MJ Wilkins, PJ Mouser; Value \$250,000

Oral Presentations by K.C. Wrighton

*Summary: 24 total oral presentations both international and national since starting at OSU
2017 to date (6), 2016 (8), 2015 (10), 2014 (8), and Fall 2013 (1)*

*Includes: several invited workshops on terrestrial-aquatic interfaces by the Department of Energy and twice
invited to microbiome seminar series at the National Academy*

Invited University, Federal, or Industry Seminars

- Department of Geosciences, Pennsylvania State University (Aug 2017), PA
- Department of Energy, Pacific Northwest National Laboratory (Feb 2017), WA
- Biology Department, University of Oregon (Feb 2017), OR
- Department of Energy, Environmental Molecular Sciences Laboratory (Apr 2016), WA
- Louisiana State University (Apr 2016), Department of Biology, LA
- Kavili Fellow (Mar 2016), Germany Exchange, Potsdam, Germany
- DOW Chemical (Feb 2016), PA
- Kavili Fellow (Aug 2015), India Exchange, CA
- University of Oklahoma (Apr 2015), Department of Microbiology, OK
- Oklahoma State University (Apr 2015), Department of Microbiology, OK
- Ohio State University, (Apr 2015) Biophysics Graduate Group, OH
- University of Georgia, (Mar 2015) Marine Sciences Department, GA
- Columbia University (Jan 2015), NY
- Exxon Energy (Jan 2015), NJ
- Ohio State University, School of Earth Sciences (Nov 2014), OH
- Miami University of Ohio, Department of Microbiology (Oct 2014), OH
- Montana State University, Department of Microbiology (Mar 2013), MT
- University of Minnesota, Department of Biochemistry (Feb 2013), MN
- Oregon State University, Department of Microbiology (Nov 2012), OR

Conference or Workshop Presentations

- Gordon Research Conference Applied and Environmental Microbiology (July 2017), MA (Invited)
- American Society of Microbiology (June 2017), LA (Invited)
- Deep Carbon Observatory (Apr 2017), Scotland (Invited)
- National Academy *Chemistry of Microbiome* Speaker Series (Sept 2016), DC (Invited)
- Department of Energy Terrestrial Aquifer Interface Workshop, DC (Invited)
- International Society of Microbiology, inferring physiology from genomics (Invited)
- Ecological Society of America, National Meeting (Aug 2016), FL (Invited)
- Joint Genome Institute, Annual Meeting (Apr 2016), CA (Invited)
- American Geophysical Union (Dec 2015) CA (Invited)
- Argonne National Laboratory (Oct 2015), Soil Metagenomics, IL (Invited)
- Multi-omics meeting (Sept 2015), Pacific Northwest National Laboratory, WA (Invited)
- American Geophysical Union (Dec 2014), CA. (Contributed)
- European Metagenomics Workshop (Oct 2014), Netherlands (Invited)
- Gordon Research Conference on C1 metabolism (Aug 2014), MA. (Invited)
- American Society of Microbiology Keynote (May 2014), MA. (Invited)
- American Society of Geological Society of America (Apr 2014), NE (Invited)
- Ohio American Society of Microbiology (Apr 2014) OH. (Invited)
- Switzerland Geophysical Union Annual Meeting (Nov 2013), Lausanne, SW (Invited)
- International Society for Microbiology (Aug 2012) Copenhagen, DK (Contributed)
- American Chemical Society National Meeting (Mar 2012) CA (Invited)
- American Geophysical Union Annual Meeting (Dec 2011) CA (Contributed)
- International Society for Microbiology (Aug 2010) WA (Contributed)

Publications

Summary: 41 publications, 25 with an impact factor > 9

Total citations 2242 (H-index 19, i-10 28)

*Wrighton lab students or staff as author denoted **

Journal Articles

1. Angle JC*, Morin TH, Solden LM*, Smith GJ*, Narrowe AB, Borton MA*, Daly RA*, Hoyt DW, Riley WR, Miller CS, Bohrer G, **Wrighton KC**. 2017. Methanogenesis in oxygenated soils is an unrecognized driver of wetland methane emissions. *Nature Communications*, in Press
2. Danzack RE, Johnston MD, Kenah C, Slattery M, **Wrighton KC**, Wilkins MJ. 2017. Members of the Candidate Phyla Radiation are functionally differentiated by carbon and nitrogen cycling capabilities. *Microbiome*, in Press
3. Booker AE, Borton MA*, Daly RA*, Welch S, Nicora CD, Hoyt DW, Wilson T, Purvine SO, Sharma S, Mouser PJ, Cole DR, Lipton MS, **Wrighton KC**, Wilkins MJ. 2017. Sulfide generation by dominant colonizing *Halanaerobium* microorganisms in hydraulically fractured shales. *mSphere*, 2(4).
4. Booker AE, Johnston MD, Daly RA*, **Wrighton KC**, Wilkins MJ. 2017. Draft Genome Sequences of Multiple *Frackibacter* Strains Isolated from Hydraulically Fractured Shale Environments. *Genome Announcements*, 5(32), e00608-17.
5. Borton MA*, Sabag-Daigle A, Wu J, Solden LM*, O'Banion BS*, Daly RA*, Wolfe RA*, Gonzalez JF, Wysocki V, Ahmer BMM, **Wrighton KC**. Chemical and pathogen induced inflammation disrupt the murine intestinal microbiome. *Microbiome*, 5(1), 47
6. Narrowe AB, Angle JC*, Daly RA*, Stefanik K*, **Wrighton KC**, Miller CS. 2017. High-resolution sequencing reveals unexplored archaeal diversity in methane-emitting freshwater wetland soils. *Environmental Microbiology*, (in press).
7. Solden LM*, Hoyt DW, Collins WB, Plank JE, Daly RA*, Hildebrand E, Beavers TJ*, Wolfe RA*, Nicora CD, Purvine SO, Carstensen M, Lipton MA, Spalinger DE, Firkins JL, Wolfe BA, **Wrighton KC***. 2016.

- New roles in hemicellulosic sugar fermentation for the uncultivated Bacteroidetes family BS11. *The ISME Journal*, 11:691-703.
8. Solden LM*, K Lloyd, **Wrighton KC**. The bright side of microbial dark matter: lessons learned from the uncultivated majority. *Current opinion in Microbiology*, 31: 217-226
 9. Daly RA*, Borton MA*, Wilkins M, Hoyt DW, Kountz DJ, Wolfe RA*, Welch SA, Marcus DN*, Trexler RV, MacRae J, Krzycki JA, Cole DR, Mouser PJ, **Wrighton KC**. 2016. Microbial metabolisms in a 2.5-km-deep ecosystem created by hydraulic fracturing in shales. *Nature Microbiology*, 1:16146.
 10. Mouser PJ, Borton MA*, Darrah TH, Hartsock A, and **Wrighton KC**. 2016. Hydraulic fracturing offers view of microbial life in the deep terrestrial subsurface. *FEMS Microbiology Ecology*, 11:166.
 11. Russell JA, León-Zayas R, **Wrighton KC**, Biddle JF. 2016. Deep subsurface life from North Pond: enrichment, isolation, characterization and genomes of heterotrophic bacteria. *Frontiers in Microbiology*,
 12. **Wrighton KC**, Castelle CJ, Varaljay VA, Satagopan S, Brown CT, Wilkins MJ, Thomas BC, Sharon I, Williams KH, Tabita FR, and Banfield JF. 2016. RubisCO of a nucleoside pathway known from Archaea is found in diverse uncultivated phyla in bacteria. *The ISME Journal*, 11:2702-2714.
 13. Varaljay VA, Satagopan S, North JA, Witte B, Dourado MN, Anantharaman K, Arbing MA, Hoefft S, McCann, Oremland RS, Banfield JF, **Wrighton KC**, Tabita FR. 2016. Functional metagenomic selection of ribulose 1, 5-bisphosphate carboxylase/oxygenase from uncultivated bacteria. *Environmental Microbiology*, 18:1187-1199.
 14. Brown CT, Hug LA, Thomas BC, Sharon I, Castelle CJ, Singh A, Wilkins MJ, **Wrighton KC**, Williams KH, and Banfield JF. 2015. Unusual biology across a group comprising more than 15% of domain Bacteria. *Nature*, 523:208–211.
 15. Luef B, Frischkorn KR, **Wrighton KC**, Holman N, Birarda G, Thomas BC, Singh A, Williams KH, Siegerist CE, Tringe SG, Downing KH, Comolli LR, Banfield JF. 2015. Diverse uncultivated ultra-small bacterial cells in groundwater. *Nature Communications*, 6:6372.
 16. Castelle CJ, **Wrighton KC**, Thomas C, Hug LA, Brown CT, Wilkins MJ, Frischkorn KR, Tringe SG, Singh A, Markillie LM, Taylor RC, Williams KH, Banfield JF. 2015. Genomic expansion of domain Archaea highlights roles for organisms from new phyla in anaerobic carbon cycling. *Current Biology*, 25:690–701.
 17. Handley KM, **Wrighton KC**, Miller CS, Wilkins MJ, Kantor RS, Thomas BC, Williams KH, Gilbert JA, Long PE, Banfield JF. 2014. Disturbed subsurface microbial communities follow equivalent trajectories despite different structural starting points. *Environmental Microbiology*, 17:622–636.
 18. Holmes DE, Giloteaux L, Chaurasia AK, Williams KH, Luef B, Wilkins MJ, **Wrighton KC**, Thompson CA, Comolli LR, Lovley DR. 2014. Evidence of *Geobacter*-associated phage in a uranium-contaminated aquifer. *The ISME Journal*, 9:333–346.
 19. **Wrighton KC**, Castelle CJ, Wilkins MJ, Hug LA, Sharon I, Thomas BC, Handley KM, Mullin SW, Nicora CD, Singh A, Lipton MS, Long PE, Williams KH, Banfield JF. 2014. Metabolic interdependencies between phylogenetically novel fermenters and respiratory organisms in an unconfined aquifer. *The ISME Journal*, 8:1452–1463.
 20. Merkley ED, **Wrighton KC**, Castelle CJ, Anderson BJ, Wilkins MJ, Shah V, Arbour T, Brown JN, Singer SW, Smith RD, Lipton MS. 2014. Changes in protein expression across laboratory and field experiments in *Geobacter bemidjiensis*. *Journal Proteome Research*, 14:1361–1375.
 21. Castelle CJ, Hug LA, **Wrighton KC**, Thomas BC, Williams KH, Wu D, Tringe SG, Singer SW, Eisen JA, Banfield JF. 2013. Extraordinary phylogenetic diversity and metabolic versatility in aquifer sediment. *Nature Communications*, 4:2120.
 22. Yelton AP, Williams KH, Fournelle J, **Wrighton KC**, Handley KM, Banfield JF. 2013. Vanadate and acetate biostimulation of contaminated sediments decreases diversity, selects for specific taxa, and decreases aqueous V⁵⁺ concentration. *Environmental Science and Technology*, 47:6500–6509.
 23. Kantor RS, **Wrighton KC**, Handley KM, Sharon I, Hug LA, Castelle CJ, Thomas BC, Banfield JF. 2013. Small genomes and sparse metabolisms of sediment-associated bacteria from four candidate phyla. *MBio*, 4(5):e00708-13.
 24. Giloteaux L, Holmes DE, Williams KH, **Wrighton KC**, Wilkins MJ, Montgomery AP, Smith JA, Orellana R, Thompson CA, Roper TJ, Long PE, Lovley DR. 2013. Characterization and transcription of arsenic respiration and resistance genes during *in situ* uranium bioremediation. *The ISME Journal*, 7:370–383.
 25. Holmes DE, Giloteaux L, Williams KH, **Wrighton KC**, Wilkins MJ, Thompson C, Roper TJ, Long PE, and

- DR Lovley. 2013. Enrichment of specific protozoan populations during *in situ* bioremediation of uranium-contaminated groundwater. *The ISME Journal*, 7:1286–98.
26. Hug LA, Castelle CJ, **Wrighton KC**, Thomas BC, Sharon I, Frischkorn KR, Williams KH, Tringe SG, Banfield JF. 2013. Community genomic analyses constrain the distribution of metabolic traits across the *Chloroflexi* phylum and indicate roles in sediment carbon cycling. *Microbiome*, 1:22.
 27. Miller CS, Handley KM, **Wrighton KC**, Frischkorn KR, Thomas BC, Banfield JF. 2012. Short-read assembly of full-length 16S amplicons reveals bacterial diversity in subsurface sediments. *PLoS One*, 8(2):e56018.
 28. SC Di Rienzi, I Sharon, **KC Wrighton**, O Koren, LA Hug, BC Thomas, JK Goodrich, JT Bell, TD Spector, JF Banfield, and RE Ley. 2013. The human gut and subsurface harbor non-photosynthetic Cyanobacteria. *Elife*, 2:e01102.
 29. Wilkins MJ, **Wrighton KC**, Nicora CD, Williams KH, McCue LA, Handley KM, Miller CS, Giloteaux L, Montgomery AP, Lovley DR, Banfield JF, Long PE, Lipton MS. 2013. Fluctuations in species-level protein expression occur during element and nutrient cycling in the subsurface. *PLoS One*, 8:e57819.
 30. Luef B, Fakra SC, Csencsits R, **Wrighton KC**, Williams KH, Wilkins MJ, Downing KH, Long PE, Comolli LR, Banfield JF. 2012. Iron-reducing bacteria accumulate ferric oxyhydroxide nanoparticle aggregates that may support planktonic growth. *The ISME Journal*, 7:338–350.
 31. **Wrighton KC**, Thomas BC, Sharon I, Miller CS, Castelle CJ, VerBerkmoes NC, Wilkins MJ, Hettich RL, Lipton MS, Williams KH, Long PE, and Banfield JF. 2012. Fermentation, hydrogen, and sulfur metabolism in multiple uncultivated bacterial phyla. *Science*, 337:1661–1665.
 32. Handley KM, **Wrighton KC**, Piceno YM, Andersen GL, DeSantis TZ, Williams KH, Wilkins MJ, N'Guessan A, Peacock A, Bargar J, Long PE, Banfield JF. 2012. High-density PhyloChip profiling of stimulated aquifer microbial communities reveals a complex response to acetate amendment. *FEMS Microbiology Ecology*, 81: 188–204.
 33. **Wrighton KC**, Thrash JC, Melnyk RA, Bigi JP, Byrne-Bailey KG, Remis JP, Schichnes D, Auer M, Chang CJ, Coates JD. 2011. Evidence for direct electron transfer by a Gram-positive bacterium isolated from a microbial fuel cell. *Applied and Environmental Microbiology*, 77:7633–7639.
 34. van Trump IJ, **Wrighton KC**, Thrash JC, Weber KA, Andersen GL, Coates JD. 2011. Humic acid-oxidizing, nitrate-reducing bacteria in agricultural soils. *MBio*, 2(4):e00044-11.
 35. Byrne-Bailey KG[#], **Wrighton KC**[#], Melnyk RA, Agbo, Hazen TC, Coates JD. 2010. Complete genome sequence of the electricity-producing *Thermincola potens* strain JR. *Journal of Bacteriology*, 192:4078–4079. [#]contributed equally
 36. Engelbrekton A, Kunin V, **Wrighton KC**, Zvenigorodsky N, Chen F, Ochman H, and Hugenholtz P. 2010. Experimental factors affecting PCR-based estimates of microbial species richness and evenness. *The ISME Journal*, 4:642–647.
 37. **Wrighton KC**, Virdis B, Clauwaert P, Read ST, Daly RA, Boon N, Piceno Y, Andersen GL, Coates JD, Rabaey K. 2010. Bacterial community structure corresponds to performance during cathodic nitrate reduction. *The ISME Journal*, 4:1443–1455.
 38. **Wrighton KC**, Agbo P, Warnecke F, Weber KA, Brodie EL, DeSantis TZ, Hugenholtz P, Andersen GL, Coates JD. 2008. A novel ecological role of the Firmicutes identified in thermophilic microbial fuel cells. *The ISME Journal*, 2:1146–1156.

Book Chapters and non-peer reviewed articles

1. LM Solden and **KC Wrighton**. 2017. Invited Perspective. Finding Life's Missing Pieces. *Nature Microbiology* 2(11): 1458
2. **KC Wrighton**[^], RA Daly, MJ Wilkins. 2017. National Academies of Sciences, Engineering, and Medicine. *The Chemistry of Microbiomes: Proceedings of a Seminar Series*. Washington, DC: The National Academies Press. doi: <https://doi.org/10.17226/24751>. [^]first and corresponding
3. **KC Wrighton**, AE Engelbrekton, IC Clark, RA Melnyk, JD Coates. 2011. Gram-positive reduction of metals: Accentuate the positive. In J.F. Stolz and R.S. Oremland (Eds.), *Microbial Metal and Metalloid Metabolism: Advances and Applications*. Washington DC: ASM Press.

Highlighted Press-related to OSU research

- PBS NOVA article on my group's deep biosphere research
<http://www.pbs.org/wgbh/nova/next/earth/deep-life>
- Article in *Science News*, related to review my laboratory wrote on Microbial Dark Matter
<https://www.sciencenews.org/article/microbial-matter-comes-out-dark>
- Article on my laboratory's hydraulic fracturing research- based on my AGU talk 2015
<http://phys.org/news/2015-12-gas-hydraulic-fracturing-source.html>
- Articles on my laboratory's recent Nature Microbiology paper
<http://arstechnica.com/science/2016/09/fracking-creates-an-ecosystem-2-5km-beneath-the-earths-surface/>

Mentoring

Doctoral Students Dissertation adviser- 4 current PhD students, 1 graduated MS student

2016-current: Mikayla Borton (Environmental Sciences Graduate Program, PhD)

2015-current: Garrett Smith (Microbiology, PhD)

2014-current: Lindsey Solden (Microbiology, PhD) *anticipated graduation Spring 2018

Jordan Angle (Microbiology, PhD) *anticipated graduation Spring 2018

Graduated: Dan Marcus (Microbiology, MS, June 2016)

Undergraduate laboratory researchers- 2 current undergraduate researchers

Current Scott Hastings (Medical Technology)

2015-2017: Bridget O'Banion (School of Environmental and Natural Resources)

David Morgan (Microbiology)

Prior students: Ray McVeety (Neuroscience 2013-2015, now OSU medical school)

Timothy Beavers (Microbiology 2014-2016, now Law School)

Melanie De La Rosa (Puerto Rico, Soil Science, summer internship)

Student Awards and Fellowships

- NSF Graduate Student Research Fellowship (GRFP). 2016-2019, Garrett Smith. \$34,000/yr
- OSU Fay Graduate Fellowship in Environmental Sciences. 2016-2017. Mikayla Borton. \$23,100/yr
- Fulbright Fellowship to Poland. 2016-2018. Timothy Beavers.
- OSU Summer Undergraduate Research Office Summer Fellowship, 2016, Bridget O'Banion \$3500
- Undergraduate Government Academic Enrichment Grant (\$600, 2016), Bridget O'Banion
- OSU Undergraduate Research Office Summer Fellowship, 2016, David Morgan, \$3500 David Morgan
- OSU Summer Research Opportunity for Underrepresented Student Group, 2014, Melanie De La Rosa, Puerto Rico
- Undergraduate researchers are contributing authors on four Wrighton laboratory peer-reviewed publications

Teaching Experience

Ohio State University, Department of Microbiology

Environmental Microbiology 5155

Undergraduate/Graduate elective

Topic: This class investigates factors that impact microbial communities across different ecosystems with a focus on the terrestrial biosphere. The objective is to expose students to topics in microbial methods, metabolism, phylogeny, ecology, and biogeochemical cycling

Overall SEI score: 4.9/5.0 (2014), 4.6/5.0 (2015), 4.7/5.0 (2016)

Ohio State University Guest Lectures

Geomicrobiology (Aug 2017, 3%), Dr. Jen Macalady

Undergraduate/Graduate- Department of Geosciences
Topic: What is inside the geomicrobiologist's microbial toolbox?

Biodegradation (Feb 2015-2017, 3%). Dr. Paula Mouser
Undergraduate/Graduate. Department of Civil, Environmental, and Geodetic Engineering
Topic: Hydrocarbon bioremediation: Approaches and considerations

Geomicrobiology (Oct 2014-2017, 15%). Dr. Mike Wilkins
Undergraduate/Graduate. School of Earth Sciences
Topic: Microbial extracellular respiration: from microbial fuel cells to iron biogeochemistry

Microbial Ecology (Nov 2013, 3%). Dr. Olli Tuovinen
Undergraduate/Graduate Department of Microbiology
Topic: Microbial ecology tool box for soils

Physiology meets Pathogenesis (Feb 2016-2017 15%). Drs. Tina Henkin, Daniel Wozniak
Graduate only. Department of Microbiology
Topic: The human microbiome in the genomics era

Leadership and Service

Ohio State University Service

- Department of Microbiology. Faculty mentor to the Students for the advancement of Microbiology, Development of cross-campus Microbiology Graduate Student group 2015- current
- Department of Microbiology. Graduate student Committee. 2015 and 2016
- School of Earth Sciences. Subsurface Energy Resource Center, Director Candidate Search. 2016
- Department of Microbiology Faculty Candidate Search. Genomics/Discovery. 2014-2016
- Assisted with faculty hire committee for Microbial data analytics 2014-2015
- Ohio State Supercomputer Allocations Committee. 2014-2017

Scientific Leadership

Session organization:

- International Society of Microbial Ecology ISME 15 2016- Panelist on Roundtable on new tools for investigating microbial metabolism
- American Society of Microbiology 2015- Organizer Key biochemical functions of microbial dark matter
- General meeting American Geophysical Union 2014- Organizer Shale Biogeochemistry
- International Society of Microbial Ecology ISME 14 2012- Convener Genetic potential and expression: key functions in microbial communities
- International Society of Microbial Ecology ISME 13 2010- Organizer Evolution, ecology, and physiology of extremophiles roundtable

Workshop Participant and Report Co-Author:

- Panelist, National Academy. Invited to speak in a four-section seminar series on the chemistry of microbiomes. My research topic was included in the "Earth Microbiome" section <http://nas-sites.org/csr/2016/06/23/chemistry-of-microbiomes-earth-seminar/>
- Panelist and Author, DOE Basic Research Needs for Environmental Management. Panel 3- Contaminant Fate and Transport in Geological Environments. July 2015. http://science.energy.gov/~media/bes/pdf/reports/files/BRNEM_rpt.pdf
- Panelist, DOE Terrestrial Ecosystems Sciences Workshop on Terrestrial Aquatic Interfaces. September 2016

Journal and Grant review

Editor positions

- *Frontiers Systems Microbiology*, Guest Editor *mBio*, Topic editor, Genomics in extreme ecosystems, *Frontiers Microbiology*

Journal Reviewer

- *Science; Nature; The ISME J; Applied and Environmental Microbiology; Frontiers in Microbiology, Biotechnology and Bioengineering; Zoo Biology; Environmental Microbiology, FEMS Microbial Ecology; Molecular Ecology; Biogeochemistry; Limnology and Oceanography, Soil Biology*

Grant reviewer

- Department of Energy- Joint Genome Institute CSP 2014-2016
- Department of Energy-Science Focus Area, 2015
- National Sciences Foundation- Division of Environmental Biology 2015, 2017