**Kimberly A. Dill-McFarland, PhD**

Postdoctoral Teaching and Learning Fellow

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**EDUCATION**

*2011-2016* **Ph.D. Microbiology**, University of Wisconsin-Madison, Madison, WI

Delta Certificate in Research, Teaching, and Learning

*2007-2011* **B.S. Molecular and cellular biology**, University of Puget Sound, Tacoma, WA, Minor mathematics, Magna cum laude

**POSITIONS**

*08/2017 - present* **Post-doctoral teaching and learning fellow**, U. of British Columbia, Dr. Steven Hallam (Microbiology & Immunology)

Experiential Data Science for Undergraduate Cross-disciplinary Education (EDUCE, <http://ecoscope.ubc.ca/program-structure/educe/>). EDUCE seeks to improve undergraduate competency in data science through hands-on learning that is both cross-disciplinary and collaborative. To achieve this, we incorporate progressive data science modules into existing courses as well as offer co-curriculars like workshops.

*07/2016 - 06/2017* **Post-doctoral research associate**, U. of Wisconsin-Madison, Drs. Federico Rey (Bacteriology) and Pamela Herd (Sociology)

*Research:* Long-term behavioral and social impacts on human health, aging, and the gut microbiota

*08/2011 - 06/2016* **Graduate research assistant**, U. of Wisconsin-Madison, Dr. Garret Suen (Bacteriology)

*Dissertation:* Assessing the impact of diet on microbial succession, growth, and milk production in dairy cows

*08/2008 - 05/2011* **Undergraduate researcher**, U. of Puget Sound, Dr. Mark Martin (Biology)

*Thesis*: Investigating maltose metabolism in *Bdellovibrio bacteriovorus*

American Society for Microbiology Undergraduate Fellow 2009, 2010

**TEACHING** (semester system)

*Courses*

*Spring 2017* **Instructor** Microbial Ecological Genomics (MICB425) at U. of British Columbia. Flipped classroom course on the intrinsic and extrinsic forces driving microbial genome evolution with a focus on the literature and interpretation of primary results <https://github.com/EDUCE-UBC/MICB425>

*Spring 2017* **Instructor** Experimental Microbiology (MICB421) at U. of British Columbia. Capstone experiential lecture and lab focused on student projects for publication in the Journal of Experimental Microbiology (JEMI, <https://jemi.microbiology.ubc.ca/>)

*Spring 2017* **Instructor** Microbes and Society (BIOL346) at U. of British Columbia. Elementary course in biology for non-majors

*Fall 2017* **Instructor** Bioinformatics (MICB405) at U. of British Columbia. Upper-level course utilizing coding and computational tools to answer questions in microbiology, immunology, and public health

*Fall 2017* **Instructor** Microbial Ecophysiology (MICB301) at U. of British Columbia. Undergraduate course on how physical and biological environment interact with the physiology of microorganisms especially metabolism

*Sum 2017* **Facilitator** Research Mentor Training at U. of Wisconsin-Madison. Discussion-based graduate course on effective research mentoring based on Entering Mentoring by Hanselsman J *et al*

*Spring 2017* **Instructor** Inclusive Teaching for TAs (EPD690) at U. of Wisconsin-Madison. Graduate course on the impacts of inequity and identity on student learning as well as how to implement inclusive teaching practices

*Workshops and short courses*

*Sum 2018* **Instructor** Compute Canada Research Computing Summer School 3-hour workshop “Microbiome data manipulation and visualization in R”

*Sum 2018* **Instructor** Centre for Teaching, Learning, and Technology (CTLT) Spring Institute 2-hour workshop “Integrating data science across undergraduate STEM curriculum”

*Spring 2017* **Instructor** Bioinformatics Resource Center (BRC) 8-hour workshops “Microbiota Processing in mothur” and “Microbiota Analysis in R” <http://rpubs.com/dillmcfarlan>

*Fall 2016* **Instructor** Bioinformatics Resource Center (BRC) 8-hour workshops “Microbiota Processing in mothur” and “Microbiota Analysis in R”

*Oct 2015* **Instructor** Universidade Federal de Viçosa, Brazil, 4-day short course “Investigating the microbiota using the Illumina MiSeq: from design to analysis”

*Teaching assistantships*

*Spring 2016* **Guest lecturer & teaching assistant** Physiological Diversity of Prokaryotes lab (MICRO551) at U. of Wisconsin-Madison

*Spring 2015* **Teaching assistant** Biology of Microorganisms (MICRO303) at U. of Wisconsin-Madison

*Fall 2012* **Guest lecturer & teaching assistant** Physiology of Microorganisms (MICRO526) at U. of Wisconsin-Madison

*Spring 2011* **Course assistant** Genetics lab (BIOL311) *and* Organic Chemistry II lab (CHEM251) at U. of Puget Sound

*Fall 2010* **Course assistant** Organic Chemistry I lab (CHEM250) at U. of Puget Sound

*Spring 2010* **Course assistant** Organic Chemistry II lab (CHEM251) at U. of Puget Sound

*Fall 2009* **Course assistant** General Chemistry I lab (CHEM110) *and* Unity of Life: cells, molecules, and systems lab (BIOL111) at U. of Puget Sound

*Spring 2009* **Course assistant** Integrated Chemical Principles and Analytical Chemistry lab (CHEM230) at U. of Puget Sound

**MENTORING**

*U. of British Columbia*

*2017-present* Lisa McEwen (graduate). Now Medical Genetics PhD candidate at U. of British Columbia, class of 2014

*2017-present* Kris Hong (undergraduate). Now Statistics undergraduate at U. of British Columbia, class of 2018

*2017-2018* Julia Beni (visiting graduate). Now Environmental Engineering PhD candidate at U. of Minnesota-Twin Cities, class of 2014

*U. of Wisconsin-Madison*

*2012-2017* Mentored students and collaborators in sequencing setup and analysis.

Animal science: Xiaoxia Dai

Dairy science: Elif Günal, Megan Kulow, Stephanie Metzger

Entomology: Rachel Arango

Population Health: Shannah Eggers

Surgery: Sharon Tang

Veterinary Medicine: Austin Zeng, Katie Neil, Kelly Anklam

*2015-2017* Madison Cox (graduate). Now Microbiology PhD candidate at U. of Wisconsin-Madison, class of 2015

*2015-2017* Andrew Steinberger (undergraduate/graduate). Now Microbiology PhD student at U. of Wisconsin-Madison, class of 2016

*2015-2016* Camila Cunha (visiting graduate). Now PhD candidate at Universidade Federal de Viçosa, Viçosa, Brazil

*2015-2016* Juliana Dias (visiting graduate). Now PhD candidate at Universidade Federal de Viçosa, Viçosa, Brazil

*2014-2015* Zoe Papalia-Beatty (high school, Youth Apprenticeship Program in Biotechnology). Now undergraduate at U. of Wisconsin-Eau Claire.

*2012-2013* Amy Speich (undergraduate). Now quality control laboratory technician at Agropur Ingredients

*2012* Sonia Chris-Ukah (undergraduate, REU). MS biomedical sciences, U. of Toledo Medical Center. Now Physician Assistant at Center for Pain Management

**PUBLICATIONS**

*\* indicates co-first authors † indicates co-corresponding authors*

13 Romano KA, **Dill-McFarland KA**, Kasahara K, Kerby RL, Vivas EI, Amador-Noguez D, Herd P, Rey FE. Fecal Aliquot Straw Technique (FAST) allows for easy and reproducible subsampling: Assessing interpersonal variation in trimethylamine-*N*-oxide (TMAO) accumulation. Microbiome 6(1): 91 doi: [10.1186/s40168-018-0458-8](https://www.ncbi.nlm.nih.gov/pubmed/29776435)

12. Dias J, Marcondes MI, de Souza SM, da Mata BC, Noronha MF, Resende RT, Machado FS, Mantovani HC, **Dill-McFarland KA†**, Suen G†. 2018. Assessing bacterial community dynamics across the gastrointestinal tract of dairy calves during pre-weaning development. Appl Environ Microbiol 84(9). doi: [10.1128/AEM.02675-17](https://www.ncbi.nlm.nih.gov/pubmed/29475865)

**PUBLICATIONS** (con’t)

11. Williams CL, **Dill-McFarland KA**, Sparks DL, Kouba AJ, Willard ST, Suen G, Brown AE. 2018. Dietary changes during weaning shape the gut microbiota of red pandas *Ailurus fulgens*). Conserv Physiol 6(1): cox075. doi: [10.1093/conphys/cox075](https://www.ncbi.nlm.nih.gov/pubmed/29399361)

10. Cunha CS, Veloso CM, Marcondes MI, Mantovani HC, Tomich TR, Periera LGR, Ferreira MF, **Dill-McFarland KA†**, Suen G†. 2017. Assessing the impact of rumen microbial communities on methane emissions and production traits in Holstein cows in a tropical climate. Syst Appl Microbiol 40(8): 492-99. doi: [10.1016/j.syapm.2017.07.008](https://www.ncbi.nlm.nih.gov/pubmed/29113689)

9. Dai X, Weimer PJ, **Dill-McFarland KA**, Brandao VL, Suen G, Faciola AP. 2017. Camelina seed supplementation at two dietary fat levels changes ruminal bacterial community composition in a dual-flow continuous culture system. Front Microbiol 8: 2147. doi: [10.3389/fmicb.2017.02147](https://www.ncbi.nlm.nih.gov/pubmed/29163431)

8. Vogt NM, Kerby RL, **Dill-McFarland KA**, Harding SJ, Merluzzi AP, Johnson SC, Carlsson CM, Asthana S, Zetterberg H, Blennow K, Bendlina BB†, Rey FE†. 2017. Gut microbiome alterations in Alzheimer’s disease. Sci Rep 7(1): 13537. doi: [10.1038/s41598-017-13601-y](https://www.ncbi.nlm.nih.gov/pubmed/29051531)

7. Dias J, Marcondes MI, Noronha MF, Resende RT, Machado FS, Mantovani HC, **Dill-McFarland KA†**, Suen G†. 2017. Effect of pre-weaning diet on the rumen archaeal, bacterial and fungal diversity of dairy calves. Front Microbiol 8: 1553. doi: [10.3389/fmicb.2017.01553](https://www.ncbi.nlm.nih.gov/pubmed/28861065)

6. **Dill-McFarland KA**, Breaker JD, Suen G. 2017. Microbial succession in the gastrointestinal tract of dairy cows from 2 weeks to first lactation. Sci Rep 7: 40864. doi: [10.1038/srep40864](https://www.ncbi.nlm.nih.gov/pubmed/28098248)

5. Jetté ME, **Dill-McFarland KA**, Hanshew AS, Suen G, Thibeault SL. 2016. The human laryngeal microbiome: effects of cigarette smoke and reflux. Sci Rep 6: 35882*.* doi: [10.1038/srep35882](https://www.ncbi.nlm.nih.gov/pubmed/27775059)

4. Williams CL\*, **Dill-McFarland KA**\*, Vandewege MW, Sparks DL, Willard ST, Kouba AJ, Suen G†, Brown AE†. 2016. Dietary shifts may trigger dysbiosis and mucous stools in giant pandas (*Ailuropoda melanoleuca*). Front Microbiol 7: 661. doi: [10.3389/fmicb.2016.00661](https://www.ncbi.nlm.nih.gov/pubmed/27199976)

*\*\*Microbiome Digest’s Best Microbiome Paper 2016*

3. **Dill-McFarland KA**, Weimer PJ, Pauli JN, Peery MZ, and Suen G. 2016. Diet specialization selects for an unusual and simplified gut microbiota in two- and three-toed sloths. Environ Microbiol 18(5): 1391-402. doi: [10.1111/1462-2920.13022](https://www.ncbi.nlm.nih.gov/pubmed/26271635)

2. **Dill-McFarland KA**, Suen G, Carey HV. 2016. Spotlight: Bears arouse interest in microbiota's role in health. Trends Microbiol 24(4): 245-6. doi: [10.1016/j.tim.2016.01.011](https://www.ncbi.nlm.nih.gov/pubmed/26873548)

1. **Dill-McFarland KA**, Neil KL, Zeng A, Sprenger RJ, Kurtz CC, Suen G†, Carey HV†. 2014. Hibernation alters diversity & composition of mucosa-associated bacteria while enhancing antimicrobial defence in the gut of 13-lined ground squirrels. Mol Ecol 23(18): 4658-69. doi: [10.1111/mec.12884](https://www.ncbi.nlm.nih.gov/pubmed/25130694)

**PUBLICATIONS** (in prep)

4. **Dill-McFarland KA**\*, Tang Z\*, Kreznar JH, Kerby RL, Chen G, Palloni A, Sorenson T, Rey FE†, Herd P†. Nat Hum Behav. Sci Rep *Submitted.*

3. Cunha CS, Marcondes MI, Veloso CM, Mantovani HC, Pereira LGR, Tomich TR, **Dill-McFarland KA**†, Suen G†. Compositional and structural dynamics of the ruminal microbiota in dairy heifers and its relationship to methane production. J Sci Food Agric *Under review.*

2. Carroll C, Olsen KD, **Dill-McFarland KA**, Suen G, Robinson TF, Chaston JM. Bacterial communities in the alpaca gastrointestinal tract vary with diet and body site. Appl Environ Microbiol *Submitted.*

1. De Wolfe TJ, Eggers S, Barker AK, Kates A, **Dill-McFarland KA**, Suen G, Safdar N. Multi-strain probiotic alters the gastrointestinal microbiota during antibiotic treatment for *Clostridium difficile* infection. PLoS One *Submitted.*

**SERVICE and OUTREACH**

*2015-present* Reviewer Appl Environ Microbiol, Appl Microbiol and Biotechnol, Environ Microbiol, FEMS Microbiol Lett, Integr Comp Bio, ISME J, Microb Ecol, PLoS One, Sci Data

*2018* Moderator “Integrating microbial ecology into the management of threatened wildlife” at ASM Microbe 2018

*2018* Undergraduate Research Symposium committee in Microbiology & Immunology at U. of British Columbia

*2017* Convener “Conserving wild microbiomes: microbial contributions to the survival of endangered species” at ASM Microbe 2017

*2013-2017* Graduate/postdoc representative for Delta Program at U. of Wisconsin-Madison

*2017* Graduate school panel at U. of Wisconsin-Whitewater

*2015* Online textbook reviewer for Macmillan New Ventures

*2015* Microbiology Doctoral Training Program admissions committee at U. of Wisconsin-Madison

*2014* Science Olympiad Badger Invitational Tournament workshop leader

*2012-2014* Microbiology Doctoral Training Program recruitment committee at U. of Wisconsin-Madison

*2012, 2013* Pre-college Enrichment Opportunity Program for Learning Excellence (PEOPLE) workshop leader

*2011* Phi Sigma Biological Sciences Honor Society symposium chair

*2010-2015* Online content reviewer for Cengage Learning: Aplia

**FUNDING** (selected)

*2016* Sigrid Leirmo Memorial Award. $1,000

*2013* Wisconsin Agricultural Experiment Station (WAES) Hatch Formula Grant. Correlating calf health and development to their associated microbial communities while on differing diet. Role: Wrote initial draft. PI: Garret Suen. Budget: $105,426, 3yr

*2012* NSF Graduate Research Fellowships Program (GRFP). Living proximity and its effects on the rumen microbial community.Role: Project design and primary writer. PI: Garret Suen. Budget: $86,000, 2yr. Honorable Mention

*2010* American Society for Microbiology (ASM) Undergraduate Research Fellowship. Investigating the regulation of malA and related genes in the bacterial predator, *Bdellovibrio bacteriovorus*. Role: Project design and primary writer. PI: Mark Martin. Budget: $5000, 10wk

**FUNDING** (con’t)

*2009* U. of Puget Sound University Enrichment Committee. Investigating the role of *mal*F and *mal*A in *Bdellovibrio bacteriovorus*' genome in maltose metabolism and the predatory lifestyle. Role: Project design and primary writer. PI: Mark Martin. Budget: $500

*2009* American Society for Microbiology (ASM) Undergraduate Research Fellowship. Investigating the role of the malF and malA regions of *Bdellovibrio bacteriovorus*' genome in maltose metabolism and the predatory lifestyle. Role: Project design and primary writer. PI: Mark Martin. Budget: $4500, 10wk

*Conference attendance and travel*

*2017* U. of Wisconsin System’s Women and Science Program through NSF ADVANCE: $188

*2016* Center for Integration of Research, Teaching, and Learning (CIRTL): $943

*2016* International Society for Microbial Ecology (ISME): €300

*2016* Federation of European Microbiological Societies (FEMS): €300

*2014, 2016* Vilas Conference Presentation Funds: $600, $1,200

*2014, 2015, 2016* Bacteriology Department at U. of Wisconsin-Madison: $500, $500, $1,000

*2013* American Dairy Science Association (ADSA): $250

*2010* University Enrichment Committee at U. of Puget Sound: $500

*2009, 2010, 2013,* American Society for Microbiology (ASM): $500, $1000, $500, $500

*2018*

**INVITED TALKS** (selected)

*Teaching and outreach*

**Dill-McFarland KA**, Cary T, Jakuba C, Jenkins K. (2016) “Exploring Biology” freshmen interest group as a high-impact practice for retaining students in STEM. Center for the Integration of Research, Teaching, and Learning (CIRTL) at U. of California, San Diego. La Jolla, CA, USA

**Dill-McFarland KA**, Weimer PJ, Pauli JN, Peery MZ, Suen G. (2016) Gut microflora of two- and three-toed sloths. Participatory Learning and Teaching Organization (PLATO) Frontiers in Life Sciences. Madison, WI, USA

*Research*

**Dill-McFarland KA**, Herd P, Rey FE. (2017) Social interactions and the human gut microbiota. Population Health Sciences at U. of Wisconsin-Madison, Madison, WI, USA.

**Dill-McFarland KA**, Rey FE, Herd P. (2017). Early- vs. late-life determinants of the human gut microbiota. U. of Wisconsin System’s postdoctoral seminar series through NSF ADVANCE: Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers. Oshkosh, WI, USA.

**Dill-McFarland KA**, Herd P, Rey FE. (2016) Early- vs. late-life contributions to the human gut microbiota. Biological Sciences at U. of California, San Diego. La Jolla, CA, USA.

**Dill-McFarland KA**, Pauli JN, Peery MZ, Suen G. (2016) Microbe-cycling between tree sloths and their symbiotic moths. San Diego Zoo: Institute for Conservation Research Seminar Series. Escondido, CA, USA.

**Dill-McFarland KA**, Suen G. (2015) Impact of the ruminal microbiota on development of the pre-ruminant calf. V Simleite (milk) at Universidade Federal de Viçosa, Viçosa, Brazil

**Dill-McFarland KA**, Pauli JN, Peery MZ, Suen G. (2015) Using mixed amplicon sequencing to investigate tree sloths and their multi-kingdom symbionts. Illumina webinar. Online.

**Dill-McFarland KA**, Pauli JN, Peery MZ, Weimer PJ, Suen G. (2015) Microbe-cycling in tree sloths facilitated by pyralid moths. American Society for Microbiology (ASM) General Meeting. New Orleans, LA, USA.

**POSTER PRESENTATIONS** (selected)

*Teaching*

**Dill-McFarland KA**, Beni JW, Hallam SJ. (2018). Flexible and progressive undergraduate data science education. American Society for Microbiology (ASM) Microbe Meeting. Atlanta, GA, USA.

**Dill-McFarland KA**, Hallam SJ. (2018). EDUCE: Experiential Data science for Undergraduate Cross-disciplinary Education. U. of British Columbia Teaching Learning Enhancement Fund (TLEF) Showcase. Vancouver, BC, Canada.

**Dill-McFarland KA**, Beni JW, Hallam SJ. (2017). Experiential Data science for Undergraduate Cross-disciplinary Education (EDUCE). U. of British Columbia Teaching with Technology Showcase. Vancouver, BC, Canada.

**Dill-McFarland KA**, Cary T, Jakuba C, Jenkins K. (2015) “Exploring Biology” FIG: a high-impact practice for retaining students in STEM. Center for the Integration of Research, Teaching, and Learning (CIRTL) National Forum. College Station, TX, USA

*Research*

**Dill-McFarland KA**, Herd P, Rey FE. (2017) Relationships and social interactions shape the human gut microbiota. American Society for Microbiology (ASM) Microbe Meeting. New Orleans, LA, USA

**Dill-McFarland KA**, Kehoe SI, Weimer PJ, Suen G. (2016) Impact of diet on development of the gastrointestinal tract and its associated microbiota in dairy calves. International Society for Microbial Ecology (ISME). Montreal, QC, Canada.

**Dill-McFarland KA**, Kehoe SI, Weimer PJ, Suen G. (2016) Impact of diet on development of the gastrointestinal tract and its associated microbiota in dairy calves. INRA-Rowett Symposium on Gut Microbiology. Clermont-Ferrand, France

**Dill-McFarland KA**, Pauli JN, Peery MZ, Weimer PJ, Suen G. (2014) Wild two- and three-toed sloths possess unique gut microbiotas characterized by low diversity and a highly abundant *Neisseria*. International Society for Microbial Ecology (ISME). Seoul, South Korea.

**Dill-McFarland KA**, Kehoe SI, Suen G. (2014) Diet effects on the dairy cow gut bacterial community from birth to lactation. American Society for Microbiology (ASM) General Meeting. Boston, MA, USA

**Dill-McFarland KA**, Speich A, Suen G. (2013) Correlating dairy calf health and development to their gut microbial communities while on differing diets. American Society for Microbiology (ASM) General Meeting. Denver, CO, USA

**PROFICIENCIES**

Unix

R

Python

Git

mothur/QIIME

Java (currently learning)

**PROFESSIONAL MEMBERSHIPS**

American Society for Microbiology (ASM)

International Society for Microbial Ecology (ISME)

**MISCELLANEOUS**

Half-marathon runner

PADI open water diver

Beginning sailor, Madison Hoofers