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) seeks to improve undergraduate competency in data science through progressive, hands-on modules in undergraduate courses, open-access workshops, and online content.

2018: Ecosystem Services, Commercialization Platforms, and Entrepreneurship (ECOSCOPE) Post-doctoral Fellow

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

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)

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)

Investigating maltose metabolism in *Bdellovibrio bacteriovorus*

2009, 2010: American Society for Microbiology Undergraduate Fellow

TEACHING (semester system)

Spring 2019 **Instructor** Microbial Ecological Genomics (MICB425) at U. of British Columbia. Flipped classroom course on the forces driving microbial genome evolution using primary literature and interpretation of next-generation sequencing data

Spring 2019 **Instructor** Microbes and Society (BIOL346) at U. of British Columbia. Elementary course in biology for non-majors

Spring 2019 **Guest lecturer** Experimental Microbiology (MICB421) at U. of British Columbia. Capstone laboratory of independent research projects in microbiology for the Undergraduate Journal of Experimental Microbiology and Immunology (JEMI)

Spring 2019 **Guest lecturer** Molecular Immunology and Virology Laboratory (MICB323) at U. of British Columbia. Laboratory course in basic immunology and virology including genetic manipulation and tissue culture.

Fall 2018 **Instructor** Bioinformatics (MICB405) at U. of British Columbia. Upper-level course utilizing coding and computational tools to answer questions in microbiology and public health

Fall 2018 **Instructor** Microbial Ecophysiology (MICB301) at U. of British Columbia. Undergraduate course on how the physical and biological environment interact with the physiology of microorganisms especially metabolism

Fall 2018 **Guest lecturer** Experimental Molecular Biology (MICB447) at U. of British Columbia. Capstone laboratory of independent research projects in molecular biology for the Undergraduate Journal of Experimental Microbiology and Immunology (JEMI)

Fall 2018 **Guest lecturer** Molecular Microbiology Laboratory (MICB322) at U. of British Columbia. Laboratory course in basic microbiology for majors including aseptic technique, plasmid isolation, and enzyme assays.

Spring 2018 **Instructor** Microbial Ecological Genomics (MICB425) at U. of British Columbia.

Spring 2018 **Instructor** Microbes and Society (BIOL346) at U. of British Columbia.

Spring 2018 **Guest lecturer** Experimental Microbiology (MICB421) at U. of British Columbia.

Fall 2017 **Instructor** Bioinformatics (MICB405) at U. of British Columbia.

Fall 2017 **Instructor** Microbial Ecophysiology (MICB301) at U. of British Columbia.

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

2018 **Instructor** ECOSCOPE 2-hour workshop “Introduction to R” and 6-hour workshops “The R tidyverse”, “Reproducible research in Git and R”, and “Intermediate R programming” github.com/EDUCE-UBC/workshops_R

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

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

2018-present Nolan Shelley (graduate TA). Botany PhD student, U. of British Columbia

2018-present Yue Liu (graduate TA). Applied Mathematics MS student, U. of British Columba

2018-present Mohammad Najjarzadegan (graduate CIRTL Teaching-as-Research). Electronics, Circuits and Systems PhD student, U. of British Columbia

2018 David Yin (undergraduate TA). Computer Science and Statistics undergraduate, U. of British Columbia

2018 Jonah Lin (undergraduate CPSC448 Directed studies). BS Computer Science and Microbiology & Immunology, U. of British Columbia. Now pursuing MS programs in microbiology

2017-2018 Lisa McEwen (graduate TA). PhD Medical Genetics, U. of British Columbia. Now Data Consultant in Clinical Analytics, Vancouver Island Health Authority

2017-2018 Kris Hong (undergraduate TA). BS Statistics, U. of British Columbia. Now PhD student.

2017-2018 Julia Beni (visiting graduate TA). Environmental Engineering PhD candidate, U. of Minnesota-Twin Cities

U. of Wisconsin-Madison

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

Animal/Dairy science: Elif Günal, Megan Kulow, Stephanie Metzger, Xiaoxia Dai
Entomology: Rachel Arango
Population Health: Shannah Eggers
Surgery: Sharon Tang
Veterinary Medicine: Austin Zeng, Katie Neil, Kelly Anklam

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

2015-2017 Andrew Steinberger (undergraduate/graduate). BS Microbiology, U. of Wisconsin-Madison. Now Microbiology PhD candidate, U. of Wisconsin-Madison

2015-2016 Camila Cunha (visiting graduate). PhD Animal Science, Universidade Federal de Viçosa, Viçosa, Brazil.

2015-2016 Juliana Dias (visiting graduate). PhD Animal Science, Universidade Federal de Viçosa, Viçosa, Brazil. Now postdoctoral researcher, Embrapa, Brasil

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

2012-2013 Amy Speich (undergraduate). BS Food Science, U. of Wisconsin-Madison. Now Quality Control Laboratory Technician at Agropur Ingredients

2012 Sonia Chris-Ukah (REU undergraduate). BS Biology, U. of Wisconsin-Oshkosh. MS Biomedical Sciences, U. of Toledo Medical Center. Now Physician Assistant at Center for Pain Management

PUBLICATIONS **first authors †corresponding author(s)*

19. Kehoe SI†, **Dill-McFarland KA**, Breaker JD, Suen G. 2019. Effects of corn silage inclusion in pre-weaned calf diets. J Dairy Sci *In press*
18. Carroll C, Olsen KD, **Dill-McFarland KA**, Suen G, Robinson TF, Chaston JM. 2018. Bacterial communities in the alpaca gastrointestinal tract vary with diet and body site. Front Microbiol Epub ahead of print. doi: 10.3389/fmicb.2018.03334
17. **Dill-McFarland KA***, Tang Z*, Kemis JH, Kerby RL, Chen G, Palloni A, Sorenson T, Rey FE†, Herd P†. Close social relationships correlate with human gut microbiota composition. Sci Rep *In press.* Preprint doi: https://doi.org/10.1101/428938
16. **Dill-McFarland KA**, Weimer PJ, Breaker JD, Suen G. 2018. Diet influences early microbiota development in dairy calves without long-term impacts on milk production. Appl Environ Microbiol Epub ahead of print. doi: 10.1128/AEM.02141-18
15. De Wolfe TJ, Eggers S, Barker AK, Kates A, **Dill-McFarland KA**, Suen G, Safdar N. 2018. Oral probiotic combination of *Lactobacillus* and *Bifidobacterium* alters the gastrointestinal microbiota during antibiotic treatment for *Clostridium difficile infection*. PLoS One 13(9): e0204253. doi: 10.1371/journal.pone.0204253
14. Cunha CS, Marcondes MI, Veloso CM, Mantovani HC, Pereira LGR, Tomich TR, **Dill-McFarland KA**†, Suen G†. 2018. Compositional and structural dynamics of the ruminal microbiota in dairy heifers and its relationship to methane production. J Sci Food Agric 99(1): 210-18. doi: 10.1002/jsfa.9162
13 Romano KA, **Dill-McFarland KA**, Kasahara K, Kerby RL, Vivas EI, Amador-Noguez D, Herd P, Rey FE. 2018. 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
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. Bacterial community dynamics across the gastrointestinal tracts of dairy calves during preweaning development. Appl Environ Microbiol 84(9): e02675-17. doi: 10.1128/AEM.02675-17
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
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

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
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
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 ruminal archaeal, bacterial, and fungal diversity of dairy calves. Front Microbiol 8: 1553. doi: 10.3389/fmicb.2017.01553
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
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
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

   ***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
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
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

SERVICE

2015-present	Reviewer Appl Environ Microbiol, Environ Microbiol, FEMS Microbiol Lett, Integr Comp Bio, ISME J, Microb Ecol, PLoS One, Sci Data, and others
2019	Moderator "Incorporating data science into undergraduate microbiology education" at ASM Microbe 2019
2018-present	Faculty of Science data science curriculum committee at U. of British Columbia
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)

2019 U. of British Columbia Teaching and Learning Enhancement Fund (TLEF). Experiential Data science for Undergraduate Cross-Disciplinary Education (EDUCE). **Role: Primary writer.** PI: Steven Hallam. Budget: $145,630, 1yr.

2018 U. of British Columbia Skylight Development Grant. Experiential Data science for Undergraduate Cross-Disciplinary Education (EDUCE). **PI: Kim Dill-McFarland.** Budget: $6,000, 1yr

2013 Wisconsin Agricultural Experiment Station (WAES) Hatch Formula Grant. Correlating calf health and development to their associated microbial communities while on differing diet. **Role: Writer and contributor.** 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: 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: Primary writer**. PI: Mark Martin. Budget: $5,000, 10wk

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: 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: Primary writer.** PI: Mark Martin. Budget: $4,500, 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

2009, 2010, 2013, 2018 American Society for Microbiology (ASM): $500, $1000, $500, $500

INVITED TALKS (selected)

Teaching

Dill-McFarland KA. 2018. Experiential Data science for Undergraduate Cross-disciplinary Education (EDUCE). Jupyter Day at U. of British Columbia, Vancouver, BC, Canada

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

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, 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

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

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