

Edna Chiang

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EDUCATION

University of Wisconsin-Madison

Madison, WI

- 4th year Microbiology PhD Candidate

Sep 2016 - Present

- PhD Minors: Life Sciences Communication and Biotechnology

- Advisors: Dr. Garret Suen and Dr. Hannah Carey

GPA: 4.00/4.00

University of Michigan

Ann Arbor, MI

- Bachelor of Science with High Distinction

Graduation: Apr 30, 2015

- Majors: Microbiology (High Honors) and Spanish

GPA: 3.85/4.00

- Honors Thesis: Ecology of Verrucomicrobia in a Freshwater Estuary

SCIENTIFIC PUBLICATIONS

Becker S*, **Chiang E***, Platinga A, Carey H, Suen G, Swoap S. (*In Review*) Stevia supplementation does not rescue high fat diet-induced obesity, glucose intolerance, or microbiota changes. *FEMS Microbiol. Ecol.* * co-first author

Schmidt ML, Biddanda BA, Weinke AD, **Chiang E**, Januska F, Props R, Denef VJ (*In Review*) Microhabitats shape diversity-productivity relationships in freshwater bacterial communities. *FEMS Microbiol. Ecol.*

Regan MD, **Chiang E**, Martin SL, Porter WP, Assadi-Porter FM, Carey HV. (2019) Shifts in metabolic fuel use coincide with maximal rates of ventilation and body surface rewarming in an arousing hibernator. *Am. J. Physiol. Regul. Integr. Comp. Physiol.* 316(6):R764-R775. doi: 10.1152/ajpregu.00379.2018.

Chiang E, Schmidt ML, Berry MA, Biddanda BA, Burtner AM, Johengen TH, Palladino D, Denef VJ (2018) Verrucomicrobia are prevalent in north-temperate freshwater lakes and display class-level preferences between lake habitats. *PLoS ONE* 13(3):e0195112. doi:10.1371/journal.pone.0195112.

Denef VJ, Carrick HJ, Cavaletto J, **Chiang E**, Johengen TH, Palladino D, Vanderploeg HA (2017) Lake bacterial assemblage composition is sensitive to biological disturbance caused by an invasive filter feeder. *mSphere* 2:e00189-17. doi:10.1128/mSphere.00189-17.

Denef VJ, Mueller RS, **Chiang E**, Liebig JR, Vanderploeg HA (2016) Chloroflexi CL500 11 populations that predominate deep lake hypolimnion bacterioplankton rely on nitrogen-rich DOM metabolism and C1 compound oxidation. *Appl. Environ. Microbiol.* 82(5):1423-1432. doi:10.1128/AEM.03014-15.

McCarthy A, **Chiang E**, Schmidt ML, Denef VJ (2015) RNA Preservation Agents and Nucleic Acid Extraction Method Bias Perceived Bacterial Community Composition. *PLoS ONE* 10(3):e0121659. doi:10.1371/journal.pone.0121659.

SCIENTIFIC PRESENTATIONS

Presentation, "The Hibernation Microbiome: Seasonal Shifts in Carbohydrate Metabolism." Microbiology Doctoral Training Program Student Seminar – Special Recruitment Seminar, Jan 31, 2020, Madison, WI

Presentation, "Science Policy Internship with FASEB." Biotechnology Training Program Seminar, Sep 25, 2019, Madison, WI.

Presentation, "Solving the Mysteries of Hibernation." Kettle Moraine Evening with Nature, Sep 12, 2019, Campbellsport, WI.

Poster, "The hibernating squirrel microbiome responds to seasonal dietary shifts by altering its functional potential."

2019 Congress on Gastrointestinal Function, Apr 16, 2019, Chicago, IL.

Poster, "The hibernating squirrel microbiome responds to seasonal dietary shifts by altering its functional potential." Biotechnology Training Program Winter Banquet, Feb 28, 2019, Madison, WI.

Presentation, "Hibernation: How Do They Survive the Winter?" Science On Tap – Mincoqua, Jan 2, 2019, Minocqua, WI.

Presentation, "Winter is Coming: A Stark Look at the Hibernator Microbiota." Biotechnology Training Program Seminar, Nov 7, 2018, Madison, WI

Presentation, "Winter is Coming: A Stark Look at the Hibernator Microbiota." Microbiology Doctoral Training Program Student Seminar, Sep 26, 2018, Madison, WI

Poster, "The hibernating squirrel microbiome responds to seasonal dietary shifts by altering its functional potential." 17th International Symposium on Microbial Ecology, Aug 12, 2018, Leipzig, Germany.

Poster, "The hibernating squirrel microbiome responds to seasonal dietary shifts by altering its functional potential." 7th Conference on Beneficial Microbes, Jul 8, 2018, Madison, WI.

Poster, "Linking bacterial taxonomic shifts with function in hibernating squirrels." Madison Microbiome Meeting, Apr 25, 2018, Madison, WI.

Poster, "Linking bacterial taxonomic shifts with function in hibernating squirrels." Biotechnology Training Program Winter Banquet, Feb 29, 2018, Madison, WI.

Poster, "Ecology of freshwater Verrucomicrobia, an abundant yet understudied bacterial phylum." Beckman Symposium, Aug 8, 2015, Irvine, CA.

Poster, "Ecology of Verrucomicrobia in a Freshwater Estuary." American Society of Microbiology General Meeting, Jun 2, 2015, New Orleans, LA.

Poster, "Ecology of Verrucomicrobia in a Freshwater Estuary." Program in Biology Undergraduate Research Poster Session, Jun 2, 2015, Ann Arbor, MI.

Presentation, "RNA Preservation Agents and Nucleic Acid Extraction Method Bias Perceived Bacterial Community Composition." University of Michigan Microbial Ecology Working Group, Oct 30, 2014, Ann Arbor, MI

Poster, "Deceptive sexual swellings as a counterstrategy to infanticide." Undergraduate Research Opportunity Symposium, Apr 18, 2012, Ann Arbor, MI.

RESEARCH EXPERIENCE

Graduate Research Assistant, Dr. Garret Suen and Dr. Hannah Carey, University of Wisconsin-Madison

- Investigated microbe-host interactions in hibernating mammals to understand the link between bacterial taxonomy and function Jan 2017 – Present
- Worked with an interdisciplinary team to perform *in vivo* stable isotope-assisted labeling experiments
- Increased bioinformatics proficiency by analyzing amplicon sequencing and metagenomic data

Undergraduate Researcher / Lab Technician, Dr. Vincent Denef, University of Michigan Sep 2012 – Aug 2016

- Optimized fluorescent *in situ* hybridization microscopy protocol, extracted DNA/RNA, prepared samples for amplicon sequencing, created cultures
- Collected water and sediment sample from Muskegon Lake and Lake Michigan
- Applied statistical and bioinformatics techniques to analyze bacterial 16S rRNA data using mothur and R

Undergraduate Researcher, Ruthven Museum of Natural History, University of Michigan May 2012 – Jul 2012

- Analyzed mite abundance and distribution on preserved lizard specimens

Undergraduate Research Opportunity Student, Dr. Jacinta Beehner, University of Michigan Sep 2011 – Apr 2011

- Compared hormone levels with chest patch sexual swellings in gelada baboons (*Theropithecus gelada*)
- Conducted hormone elutions and assays, analyzed chest patch color using Photoshop

AWARDS

- NSF Non-Academic Research Internships for Graduate Students (INTERN) Supplemental Funding Jul 2019
- NSF Graduate Research Fellowship Sep 2018 – Aug 2023
- NIH Biotechnology Training Program Traineeship Jan 2017 – Aug 2019
- Dr. Leonard E. Mortenson Graduate Scholarship Apr 2019
- University of Wisconsin-Madison Student Research Travel Grant Sep 2018
- Bacteriology Graduate Student Travel Award May 2018
- Phi Beta Kappa Mar 2015
- Beckman Scholars Fellowship May 2014 – Aug 2015
- American Society of Microbiology Undergraduate Research Fellowship May 2014 – Dec 2014
- University of Michigan Honors Summer Fellowship May 2014 – Aug 2014

TEACHING EXPERIENCE

- Co-Instructor, Biotechnology Center, University of Wisconsin-Madison** Nov 2017 – Present
 - Co-instructed workshops teaching analysis of amplicon sequencing data with mothur and R
- Graduate Teaching Assistant, University of Wisconsin-Madison** Sep 2017 – Dec 2017
 - Assisted in teaching Emerging Infectious Diseases and Bioterrorism (MM&I 554)
 - Encouraged student discussion, graded exams and homework
- Guest Instructor, Microbiology Capstone Course, University of Wisconsin-Madison** Jan 2017 – May 2017
 - Designed student research projects in collaboration with Dr. Robin Kurtz and Dr. Melissa Christopherson
 - Collected samples for students, taught bioinformatics, and directly aided in bacterial genome assembly
- Biochemistry Study Group Leader, Science Learning Center, University of Michigan** Sep 2013 – Apr 2015
 - Created engaging activities to help students enhance their understanding of biochemistry
 - Formed strong sense of community to encourage collaborative discussion between students

VOLUNTEER EXPERIENCE

- Admissions Committee, Microbiology Doctoral Training Program, University of Wisconsin-Madison**
 - Evaluated applications from prospective PhD students for the Microbiology Doctoral Training Program Nov 2019 – Feb 2020
- Meta-Review Supervisor, National Science Policy Network 2020 Election Initiative** Nov 2019 – Dec 2019
 - Participated in the 2020 Election Initiative to impact 2020 election cycle discussions and advocate for science- and evidence-based policymaking
 - Reviewed and edited meta-reviews for publication as online resources cataloging existing policies, resources, and stakeholders about various scientific topics
- Invited Speaker, Kettle Moraine Evening with Nature, Campbellsport, WI** Sep 12, 2019
 - Presented two stories about hibernation from the perspective of a hibernating squirrel and its gut microbes
 - Engaged in informal discussion with local Minocqua, WI residents about implications of hibernation research
- Science Policy Fellow, Federation of American Societies for Experimental Biology, Bethesda, MD**

- Worked for the nation's largest biological and biomedical research advocacy group in their Office of Public Affairs on the Legislative Affairs team May 2019 – Aug 2019
- Helped to coordinate a congressional briefing about NSF-funded research addressing the public health concern of antimicrobial resistance
- Attended congressional briefings and hearings; participated in stakeholder meetings for science agencies (e.g. NSF) and professional societies (e.g. ASM, AAAS)
- Wrote articles for the FASEB Washington Update newsletter to inform society members of the latest news in science policy and advocacy

Invited Speaker, Science On Tap – Minocqua, Minocqua, WI *Jan 2, 2019*

- Presented two stories about hibernation from the perspective of a hibernating squirrel and its gut microbes
- Engaged in informal discussion with local Minocqua, WI residents about implications of hibernation research

Social Media Manager, Carey Lab, University of Wisconsin-Madison *Nov 2018 - Present*

- Administered Carey Lab twitter handle (@13liner) to increase public recognition and interaction by highlight work from Carey Lab members and collaborators

Gaining STEAM! Scientist, JKK Comics, University of Wisconsin-Madison *Oct 2018 – May 2019*

- Created a comic book about hibernation microbiology by integrating science, story-telling, and art through a collaboration with JKK Comics and local Madison artists
- Incorporated the comic into outreach activities to improve participant engagement and learning

Wisconsin Idea STEM Fellow, University of Wisconsin-Madison *Jun 2018 – Present*

- Learned interactive teaching strategies and outreach evaluation techniques
- Developed an interactive hibernation microbiology outreach activity for elementary school-aged children
- Worked with fellows-in-training to develop and improve their outreach activities

Social Media Manager, Microbiology Doctoral Training Program, UW-Madison *Nov 2017 - Present*

- Managed Microbiology Doctoral Training Program (MDTP) twitter handle (@UWMadisonMDTP)
- Increased public recognition by highlight news and work from MDTP trainers and students

Designer and Volunteer, Science Saturday, University of Wisconsin-Madison *Sep 2017 - Present*

- Co-developed and implemented outreach activities with the Wisconsin Institute for Discovery and Morgridge Research Institute to teach hibernation physiology and microbe-host physiology

Social Media Manager, Suen Lab, University of Wisconsin-Madison *Dec 2016 - Present*

- Administered Suen Lab twitter handle (@suenlab) to increase public recognition by highlighting work from Suen Lab members and collaborators

LEADERSHIP EXPERIENCE

Student Recruitment Team, Microbiology Doctoral Training Program, UW-Madison *Aug 2017 – Apr 2019*

- Organized four recruitment weekends to welcome prospective PhD students and share the research and environment that UW-Madison offers
- Coordinated student hosts, faculty interviews, student panels, activities, and dinner reservations

Editorial Board Member, University of Michigan Undergraduate Research Journal *Sep 2012 – Apr 2015*

- Assisted students in improving writing submissions for publication
- Coordinated meetings with corporate sponsors and university departments to increase journal funding
- Performed outreach by conducting presentations to inform undergraduates about research opportunities

Co-President, Arabian Dance Ensemble, University of Michigan *Sep 2011 – Apr 2015*

- Instructed beginning belly dance class and created choreography to teach students
- Oversaw usage of group funds, coordinated costume purchases, and organized performances

SKILLS

- **Lab Skills:** DNA/RNA extraction, PCR, gel electrophoresis, DNA library preparation, Illumina MiSeq sequencing, fluorescent *in situ* hybridization microscopy, limnology field work and sample collection, squirrel trapping
- **Bioinformatics:** R (advanced), perl (familiar), python (familiar), mothur (advanced), bash (familiar), HTML (intermediate), CSS (intermediate), amplicon sequencing analysis, metagenomic analysis
- **Languages:** English (fluent), Spanish (fluent), Mandarin Chinese (intermediate)

OUTREACH

Saturday Science – Get Set to Meet a Pet Vet (620 attendees)	Nov 2019
Wisconsin Science Festival (2570 attendees)	Oct 2019
NSF GRFP Workshop Panelist: How to Address the Broader Impact in Your Fellowship Application	Oct 2019
Kettle Moraine Evening with Nature: Solving the Mysteries of Hibernation (18 attendees)	Sep 2019
Smithsonian National Museum of Natural History – Magnificent Marine Microbes (181 participants)	Jul 2019
NSF Advocacy Capitol Hill Day – American Physiological Society	May 2019
Gaining STEAM! Showcase – Saturday Science (109 participants)	May 2019
Saturday Science – Aldo Leopold Day	Jan 2019
Science on Tap – Minocqua (144 attendees)	Jan 2019
WXPR Radio Interview	Dec 2018
Saturday Science – Creepy Crawlies	Oct 2018
Saturday Science – The Science of Healthy Living (552 attendees)	Aug 2018
Wisconsin Science Festival	Oct 2017
Saturday Science – The Buzz in Your Backyard	Oct 2017
Saturday Science	Sept 2017
Science Expeditions	Mar 2017
Capital Science and Engineering Fair	Feb 2017
Wisconsin Science Festival	Oct 2016

PROFESSIONAL DEVELOPMENT

American Association for the Advancement of Science Annual Meeting	Feb 2020
Mini-Catalyzing Advocacy in Science and Engineering Workshop	Feb 11, 2020
Scientifically Tested Methods to Reduce Racism and Promote Inclusion	Feb 10, 2020
Web Design for the Sciences	Sep 2019 – Dec 2019
Communicating Science Conference – Chicago	Aug 2019
Science Advocacy Training – American Physiological Society	May 2019
Science Policy Internship – Federation of American Societies for Experimental Biology	May 2019 – Aug 2019
Beyond the Bench: Careers in Science Policy and Communication	May 2019
Life Sciences Communication Symposium	Jan 2019 – May 2019
Scientific Writing	Jan 2019 – May 2019
Getting the message across	Oct 12, 2018

Life as a Scientific Editor: It's all about Communication	Sep 20, 2018
Wisconsin Idea STEM Fellows	Jun 27, 2017 - Present
Life Sciences Career Day	Apr 13, 2017
Empowering People to Break the Prejudice Habit: Creating Inclusion and Overcoming Bias	Dec 14, 2017
Building Your Networking Confidence	Nov 30, 2017
DELTA – Communicating Science with Everyone	Sep 2017 – Dec 2017
Improv for Scientists (Medicine 710)	Sep 2017 – Oct 2017
DELTA – NSF Application Broader Impacts Workshop	Oct 4, 2017
Oral Science Communication Through Improv Workshop	Jun 26, 2017
CIRTL – Developing a CV or Resume	Jun 22, 2017
What Graduate Students Need to Know about Successful Negotiation	Apr 13, 2017
Science Writing as a Career	Apr 06, 2017
Careers in Government Research Labs	Mar 28, 2017
Public Opinion of Life Science Issues (LSC 902)	Sep 2016 – Dec 2016
Writing Science as a Story (Comp Bio 675)	Nov 2016 – Dec 2016

PEER-REVIEW

PLOS ONE	Feb 2019
Science (co-reviewer)	Jan 2019
Scientific Reports (co-reviewer)	Oct 2018
Environmental Microbiology (co-reviewer)	Apr 2018

MENTEES

Yuhan Xie, Computer Science Undergraduate Student	Jun 2018 – Aug 2018
Hannah Grauer, High School Student	Sep 2017 – Oct 2018
Darby Gilfillan, Visiting Undergraduate Student	Jul 2017 – Aug 2017