

ANNA “ANNIE” SHOEMAKER

annashoemaker@montana.edu

Bozeman, MT

EDUCATION

Montana State University

Ph.D. student in Earth Sciences: Ecology and Environmental Sciences

Expected
August 2025

University of Washington

B.S. in Microbiology and Physics
Minor in Applied Math

June 2020

GRANTS, HONORS, AND AWARDS

Dean's List (Winter 2020, Spring 2020)

Mary Gates Research Scholarship (2019)

PUBLICATIONS

- Cooper, Z, Rapp, J, **Shoemaker, A**, Anderson, R, Zhong, Z-P, & Deming, J (2022). Evolutionary Divergence of Marinobacter Strains in Cryopeg Brines as Revealed by Pangenomics. *Frontiers in Microbiology*, 13. <https://doi.org/10.3389/fmicb.2022.879116>
- Golkowski, M & Lau, H-T, Chan, M, Kenerson, H, Vidadala, V, **Shoemaker, A**, Maly, D, Yeung, R, Gujral, T, Ong, S-E. (2020). Pharmacoproteomics Identifies Kinase Pathways that Drive the Epithelial-Mesenchymal Transition and Drug Resistance in Hepatocellular Carcinoma. *Cell Systems*. 11, 2, 196-207, doi:10.1016/j.cels.2020.07.006.
- Golkowski, M, Vidadala, V, Lau, H-T, **Shoemaker, A**, Shimizu, M, Beavo, J, Maly, D, Ong, S-E. (2020). Kinobead/LC-MS Phosphokinome Profiling Enables Rapid Analyses of Kinase-Dependent Cell Signaling Networks. *Journal of Proteome Research*. (2020). 19, 3, 1235-147 doi:10.1021/acs.jproteome.9b00742.

PROFESSIONAL EXPERIENCE

The Skidmore Lab, Montana State University, Bozeman, MT

2021 to present

Ph.D. Student, Mark Skidmore, Ph.D.

- Currently working to characterize iron reduction within glacial sediments.
- Characterizing microbial communities and the microbial role in schwertmannite deposition in Colour Lake, Axel Heiberg Island.
- Characterizing the microbial habitability of subglacial drainage from the Devon Ice Cap as an analogue for Europa. Part of the greater ESCHER project.

Process Development, Seagen (Seattle Genetics), Seattle, WA

2020 to 2021

Research Associate I, Matthew Leith

- Worked on perfusion cell culture using CHO cells for the purpose of developing monoclonal antibody-based therapies for the treatment of cancer.

UW Virology Division, University of Washington, Seattle, WA

2020

Clinical Lab Technician I, Angela Yu

- Worked to aid in the COVID-19 effort in a BSL-2 lab. Primarily processed and tracking samples.

The Deming Lab, University of Washington, Seattle, WA

2018 to 2020

Undergraduate Research Assistant, Jody Deming, Ph.D.

- Isolated strains from samples collected in cryopegs collected in Utqiagvik, AK. I also worked to characterize the effects of different salinities and temperatures of a *Psychrobacter* isolate.
- Worked on a project studying the effects of different salinities and temperatures on several strains.
- Generated growth curve data for bacterial isolates in culture with psychrophilic diatoms and some temperature characterization of these isolates.

The Levesque Lab, University of Washington, Seattle, WA

2020

Undergraduate Research Assistant, Emily Levesque, Ph.D.

- Worked on the classification of variable objects of the Andromeda Galaxy (M31) detected by the Zwicky Transient Facility and through the Global Relay of Observatories Watching Transients Happen (GROWTH) database.

The Ong Lab, University of Washington, Seattle, WA

2016 to 2018

Undergraduate Research Assistant, Shao-En Ong, Ph.D.

- Assisted on various research projects, where mass-spectrometry and other proteomics approaches are used to study protein-protein interactions and the regulation of cellular processes like growth and proliferation.
- Became practiced with chemical labeling and molecular biology procedures such as cloning, western blotting, SILAC, and co-immunoprecipitation.

COURSEWORK AT MONTANA STATE UNIVERSITY

Spring 2022

Biogeochemistry Analysis Synthesis; LRES 567
 Climates Past, Present, Future; EARTH 584
 Master's Thesis; EARTH 590

Fall 2021

Glacial Geology; GEO 445
 Geomicrobiology; EARTH 505
 GIS Research Fundamentals; GPHY 504

TEACHING EXPERIENCE

Teaching Assistant Montana State University, Bozeman, MT
Earth System Sciences Earth 101

2021 to 2022

SELECTED PRESENTATIONS

Oral Presentation, "Elevated Salinity Effects on Growth Yield of Psychrophilic Bacteria,"
 Undergraduate Research Symposium, May 18th, 2020.

Poster Presentation, "Growth of Sea-Ice Bacteria at Different Salinities and Temperatures,"
 Undergraduate Research Symposium, May 17th, 2019.

Oral Presentation, "Functional Interaction of Cyclic Adenosine Monophosphate (cAMP) and Hippo Signaling in Tumor Suppression and Tissue Homeostasis," Undergraduate Research Symposium, May 18th, 2018.

SKILLS

Wet Lab: Anaerobic cell culturing; bacterial cell culture and isolation; western blotting; cloning; mammal cell culture; primer design; PCR; autoclaving biohazard; making agar plates, media and solutions

Programming: Python, Pandas, Numpy, GDAL, MatLab, Linux, JavaScript, HTML

Applications: GIS (ESRI, QGIS), Microsoft Suite (Word, Excel, Powerpoint, etc.), ApE – A plasmid Editor

COMMUNITY SERVICE

Montana State University: Women in Science and Engineering

Graduate Mentor, Bozeman, MT, 4/2022

University of Washington: Society of Physics Students

Treasurer, Seattle, WA, 9/2019 – 6/2020

University of Washington: Planetarium and Astrobiology with the Mobile Planetarium

Planetarium Presenter, Seattle, WA, 11/2016 – 6/2020

Two Cranes Aikido

Assistant Youth Instructor, Seattle, WA, 9/2015 – 6/2019

REFERENCES

Dr. Mark Skidmore, Associate Professor

Montana State University

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Dr. Jody Deming, Karl M. Banse Endowed Professor

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