HANNAH GLESENER

Ph.D. Candidate
Ira A. Fulton Schools of Engineering
Arizona State University
(e) hannah.glesener@gmail.com
(p) 206.696.6633
LinkedIn | Google Scholar

EDUCATION

Arizona State University, Tempe, AZ
Ph.D. Biological Design — May 2027 (Anticipated)
M.S. Biological Design — December 2025
GPA: 4.0
Advisors: Dr. Rosa Krajmalnik-Brown and Dr. Lee Voth-Gaeddert
Dissertation Title (working)*: From Food to the Gut Microbiome: Integrating Biological and Engineering Approaches to Mitigate Aflatoxin Exposure in Low-Resource Settings*

University of Alaska Fairbanks, Fairbanks, AK — May 2022
B.S. Biological Sciences
GPA: 3.9
Capstone: *Built Environment Microbiomes: Effects of Household Practices on Microbial Community Structure*

Seattle Pacific University, Seattle, WA — May 2015
B.A. Communications
GPA: 2.7

EXPERIENCE

Arizona State University, Biodesign Institute, Tempe, AZ — August 2022-present
Graduate Research Assistant – Center for Health Through Microbiomes
PIs: Dr. Rosa Krajmalnik-Brown and Dr. Lee Voth-Gaeddert

- Design and execute interdisciplinary studies integrating experimental, computational, and engineering approaches to investigate interactions among environmental toxins, food systems, and the human gut microbiome.
- Operate anaerobic bioreactor models of the human gut microbiome to investigate microbial responses to toxin exposure and distinguish direct microbial effects from host-mediated mechanisms.
- Generate and analyze microbiome datasets from human and animal samples, integrating molecular methods, high-throughput sequencing, high-performance computing, bioinformatics, and statistical analysis to characterize microbial community structure and function.
- Lead multiple concurrent research projects, coordinating experiments and collaborators while managing a team of 4 undergraduate researchers.
- Author and collaborate on 11 peer-reviewed publications with 42 citations.

Arizona State University, Tempe, AZ — October 2025 – May 2026
Teaching Assistant – Watts College of Public Service & Community
Professors: Dr. Michael M. Crow and Dr. Arthur Daemmrich

- Contributed to course improvement for ASU President's *Science, Technology, and Public Affairs*, including curriculum, learning objectives, assignments, and instructional resources.

- Led technical communication projects for 20 undergraduate and graduate students by guiding research, scriptwriting, storyboarding, and video production, culminating in professional educational videos published on the *ASU Science, Technology, and Public Affairs* YouTube channel.

University of Alaska Fairbanks, UAF Institute of Arctic Biology, Fairbanks, AK August 2021 – July 2022
National Science Foundation Research Experiences for Undergraduates
PI: Dr. Ursel Schütte

- Conducted field research in the boreal forest with USDA Forest Service at the Bonanza Creek Long-term Ecological Research (LTER) site by gathering samples from active fungal cankers on *Populus tremuloides* (trembling aspen).
- Optimized RNA extraction method for *P. tremuloides* project characterizing the immune response of an aggressive fungal canker using dry ice and liquid nitrogen to maintain cold chain.

University of Alaska Fairbanks, Fairbanks, AK May 2021 – June 2022
Biomedical Learning and Student Training Undergraduate Research Experience
PI*:* Dr. Andrea Bersamin

- Developed and received funding for a text messaging intervention program to increase fruit and vegetable intake in undergraduate students at UAF using a noninvasive spectroscopy method measuring pre-post skin carotenoids.
- Conducted several focus groups, incorporated feedback, and implemented program in Spring 2022 with 32 students completing the full program.

University of Alaska Fairbanks, Fairbanks, AK January 2021– May 2022
Teaching Assistant – Department of Biology and Wildlife

- Beginnings in Microbiology, Dr. Ursel Schütte – Taught and managed undergraduate laboratory sections for two semesters, leading experiments, grading lab reports and providing individualized student support.
- Introduction to Human Nutrition, Dr. Andrea Bersamin – Ran laboratory section of course, instructing students on applied nutrition and food science experiments and scientific reporting.

University of Alaska Fairbanks, Fairbanks, AK February 2022 – April 2022
Genomics Workshop Student Researcher
PI: Dr. Devin Drown

- Built and tested a portable genomics platform for pathogen detection, integrating an NVIDIA Jetson GPU with Oxford Nanopore MinION DNA sequencing and using R to analyze and visualize sequencing data.

University of Alaska Fairbanks, Fairbanks, AK March 2020 – December 2021
Undergraduate Research Assistant – Center for Alaska Native Health Research
PI*:* Dr. Andrea Bersamin

- Supported community-based nutrition interventions with Alaska Native populations through research data management and culturally competent practices to understand barriers to healthy eating.

HONORS AND AWARDS

ASU GSG Publication Grant – *$1,500*	June 2026
ASU Graduate College Completion Fellowship – *$26,600*	April 2026
University Graduate Fellowship – *$3,050*	February 2026
Keystone Symposia Future of Science Fund Scholarship – *$1,200*	January 2026
Fulton Experiential Learning Grant – *$1,012*	November 2025
Biodesign Institute Travel Grant – *$500*	October 2025
PacBio Microbiome SMRT Grant – *$10,000*	September 2025

Venture Capital University Life Science Track Full Scholarship – *$1,850*	August 2025
University Graduate Fellowship – *$750*	July 2025
ASU GSG Outstanding Research Award for Spring 2025 – *$750*	April 2025
ASU GPSA Publication Grant – *$1,200*	August 2024
NSF Graduate Fellowship Research Program – *Honorable Mention*	April 2024
Biodesign Institute Travel Grant – *$500*	March 2024
ASU GPSA Travel Grant – *$950*	January 2024
ASU GPSA Career Development Grant – *$950*	August 2023
University Graduate Fellowship – *$500*	July 2023
Dean's Fellowship, ASU – *$35,000/year for 5 years*	Fall 2022
Outstanding Undergraduate Student in Biological Science	May 2022
Dan Glass Memorial Award – *$1,000*	April 2022
Chancellor's List – *5 semesters*	Summer 2020 – Spring 2022
Undergraduate Research and Scholarly Activity Spring Award – *$2,500*	Spring 2022
NSF Research Experience for Undergraduates	Summer 2021
BLaST Summer Research Award – *$5,000*	Summer 2021

PEER-REVIEWED PUBLICATIONS

1. McGovern, C. J., Gracey, P. R., **Glesener, H.,** Gaeddert, L. V., & Tako, E. (2026). In ovo dose-response characterization of Lactiplantibacillus plantarum HY7715 reveals coordinated physiological and microbiome responses in vivo (Gallus gallus). *Food Research International*, 120632. DOI: 10.1016/j.foodres.2026.120632
2. Voth-Gaeddert, L. E., **Glesener, H.,** & Montenegro-Bethancourt, G. (2026). A Framework for Monitoring Contaminants in Decentralized Agricultural Systems: Leveraging Stakeholder Incentives in Low-Resource Settings. *Toxins*, *18*(8), 335. DOI: 10.3390/toxins18080335
3. Nagar, E. E., Jackson, C., Adhnitasari, A. Y., **Glesener, H.,** Mazariegos, M., Bar, H., ... & Tako, E. (2026). Zinc-Biofortified Maize Improves Cellular Zinc Status and Elicits Age-Dependent Ecological Adaptations in the Host-Microbiome Axis. *Current Developments in Nutrition*, *10*. DOI: 10.1016/j.cdnut.2026.109038
4. McGovern, C. J., Gracey, P. R., **Glesener, H.,** Gaeddert, L. V., & Tako, E. (2026). In ovo dose-response characterization of Lactiplantibacillus plantarum HY7715 reveals coordinated physiological and microbiome responses in vivo (Gallus gallus). *Food Research International*, 120632. DOI: 10.1016/j.foodres.2026.120632
5. Sharma, M. K., Agarwal, N., Stadulis, S. E., Dugan, E. M., Giovannoni, C. B., **Glesener, H.,** ... & Tako, E. (2026). Dietary grape pomace mitigates high-NSP-induced inflammation and production loss via microbiome-SCFA-immune mediated pathways. *npj Biofilms and Microbiomes*. DOI: 10.1038/s41522-026-00996-8
6. **Glesener, H.,** Roberts, A. M., Tanveer, H., Abdollahzadeh, D., Seegmiller, E., Su, B., ... & Voth-Gaeddert, L. E. (2026). Local Nixtamalization Processes Reduce Aflatoxin B1 Concentration and Shift Metabolome in Naturally Contaminated Maize. *Journal of Agricultural and Food Chemistry*, *74*(17), 13978. DOI: 10.1021/acs.jafc.5c13174
7. **Glesener, H.,** Voth-Gaeddert, L. E., & Krajmalnik-Brown, R. (2025). Gut Check: Can Probiotics Serve as a Microbial Intervention to Mitigate Toxin Exposure?. *The Journal of nutrition*, *155*(7), 2009-2010. DOI: 10.1016/j.tjnut.2025.05.028
8. Tanveer, H., **Glesener, H.,** Su, B., Bolsinger, B., Krajmalnik-Brown, R., & Voth-Gaeddert, L. E. (2025). Evaluating methods for aflatoxin B1 monitoring in selected food crops within decentralized agricultural systems. *Toxins*, *17*(1), 37. DOI: 10.3390/toxins17010037
9. Montenegro-Benthancourt, G., **Glesener, H.,** Torres, O., Seegmiller, E., Rohloff, P., & Voth-Gaeddert, L. E. (2024). Practices of maize handling and nixtamalization to reduce fungal toxin exposure in rural Guatemala. *Journal of agriculture and food research*, *18*, 101512. DOI: 10.1016/j.jafr.2024.101512
10. **Glesener, H.,** Abdollahzadeh, D., Muse, C., Krajmalnik-Brown, R., Weaver, M. A., & Voth-Gaeddert, L. E. (2024). X-ray irradiation reduces live Aspergillus flavus viability but not aflatoxin B1 in naturally contaminated maize. *Toxins*, *16*(8), 329. DOI: 10.3390/toxins16080329

11. Cheng, Q., **Glesener, H.,** Montenegro, G., Torres, O., Miller, A. C., Krajmalnik-Brown, R., ... & Voth-eGaeddert, L. E. (2023). Assessment of aflatoxin exposure, growth faltering and the gut microbiome among children in rural Guatemala: protocol for an observational prospective cohort and bioreactor simulations. *BMJ Paediatrics Open*, *7*(1), e001960. DOI: 10.1136/bmjpo-2023-001960

MANUSCRIPTS IN REVIEW

1. Qiwen Cheng, **Hannah Glesener**, Aurely Sanchez Carreon, Lee E Voth-Gaeddert, Rosa Krajmalnik-Brown. Reconsidering the Use of Dimethyl Sulfoxide for Xenobiotic-Gut Microbiota Interaction Studies.

PRESENTATIONS

1. **Glesener, H.,** Krajmalnik-Brown, R., Tako, E., and Voth-Gaeddert, L.E. Gut Microbiome Structure and SCFA Production Differentiate by Growth Trajectory but Not Static Height Status in Children. Oral presentation. *Annual American Society for Microbiology Arizona–Southern Nevada Branch Meeting*: Tuba City, AZ, April 2026.
2. **Glesener, H.,** Krajmalnik-Brown, R., Tako, E., and Voth-Gaeddert, L.E. Gut Microbiome Structure and SCFA Production Differentiate by Growth Trajectory but Not Static Height Status in Children. Poster presentation: *Biodesign Fusion 2026*: Phoenix, AZ, April 2026.
3. **Glesener, H.,** Dorn, N., Krajmalnik-Brown, R., and Voth-Gaeddert, L.E. Human Gut Microbiota Resist Acute Aflatoxin B1 Exposure in Anaerobic Batch Bioreactors. Poster presentation. *Keystone Symposia Human Microbiome: From Models and Mechanism to Medicine*: Banff, Canada, January 2026.
4. **Glesener, H.,** Dorn, N., Krajmalnik-Brown, R., and Voth-Gaeddert, L.E. Gut microbial metabolic responses to solvent-dependent delivery of aflatoxin B1 in batch bioreactors. Poster presentation. *Biodesign Fusion 2025*: Phoenix, AZ, April 2025.
5. Aguilar, B., **Glesener, H.,** Tako, E. and Voth-Gaeddert, L.E. Pathogen Carriage and Gut Inflammation in Chronically Malnourished Pediatric Populations. Mentee poster presentation at: *Biodesign Fusion 2025*: Phoenix, AZ, April 2025.
6. Abdollahzadeh, D., Tanveer, H., **Glesener, H.,** and Voth-Gaeddert, L.E. The Potential of AGP Substitutes to Mitigate the Threat of AMR Resistance: Analyzing AMR Genes in Broiler Fecal Content. Mentee poster presentation. *Biodesign Fusion 2025*: Phoenix, AZ, April 2025.
7. Tanveer, H., Abdollahzadeh, D., **Glesener, H.**, Tako, E. and Voth-Gaeddert, L.E. Therapeutic Potential of Synbiotics for Recovery from Gut Inflammation and Growth Outcomes in Broiler Chickens. Mentee poster presentation. *Biodesign Fusion 2025*: Phoenix, AZ, April 2025.
8. **Glesener, H.,** Dorn, N., Krajmalnik-Brown, R., and Voth-Gaeddert, L.E. Solvent-dependent aflatoxin B1 delivery does not elicit strong gut microbial metabolic responses in batch bioreactors. Poster presentation. *Annual American Society for Microbiology Arizona–Southern Nevada Branch Meeting*: Flagstaff, AZ, April 2025.
9. **Glesener, H.,** Tanveer, H., Abdollazedah, D., Seegmiller E., Su B., Krajmalnik-Brown, R., and Voth-Gaeddert, L.E. Assessing Household Nixtamalization Parameters to Remove Aflatoxin B1. Poster presentation and rapid fire talk. *Biodesign Fusion 2024*: Phoenix, AZ, April 2024.
10. **Glesener, H.,** Weaver, M., Abdollazedah, D., Krajmalnik-Brown, R., and Voth-Gaeddert, L. E. X-ray irradiation of *Aspergillus flavus* and Aflatoxin B1 contaminated maize. Oral presentation. *American Chemical Society Spring 2024*: New Orleans, LA, March 2024.
11. **Glesener, H.** and Schütte, U. Characterizing the immune response of trembling aspen to an aggressive fungal pathogen in Interior Alaska. Poster presentation. *2022 URSA Research and Creative Activity Day*: Fairbanks, AK, April 2022.
12. Brown, J., **Glesener, H.,** Pemberton, E., White, O., Wrenn, D., and Drown, D. Portable Genomics Hackathon for pathogen detection**.** Group poster presentation. *2022 URSA Research and Creative Activity Day*: Fairbanks, AK, April 2022.
13. **Glesener, H.** and Schütte, U. Optimizing RNA extraction from trembling aspen bark to characterize plant immune response to an aggressive fungal canker. Poster presentation. *2021 American Society for Microbiology Alaska Branch Meeting*: Fairbanks, AK, November 2021.

PEER REVIEWER

Mycotoxin Research
The Journal of Nutrition

MENTORSHIP

Hannah Kunimoto June 2025 – present
Benjamin Aguilar, *Thesis Committee Member* August 2023 – May 2025
Thesis: *Pathogen Carriage and Inflammatory Markers: Exploring Gut Microbiota in Malnourished Populations*
Haadia Tanveer, *Thesis Committee Member* August 2023 – May 2025
Thesis*: The Therapeutic Potential of Synbiotics for Gut Inflammation and Growth Promotion: Analyzing AMR Genes and SCFA Profiles in Chicken Fecal Content* (joint project with D. Abdollahzadeh).
Darya Abdollahzadeh, *Thesis Committee Member* August 2023 – May 2025
Thesis: *The Therapeutic Potential of Synbiotics for Gut Inflammation and Growth Promotion: Analyzing AMR Genes and SCFA Profiles in Chicken Fecal Content* (joint project with H. Tanveer)
Emeline Seegmiller August 2023 – May 2024
Blake Su August 2023 – December 2023

MEDIA

ASU News July 2026
Research feature: *Ancient cooking technique offers modern defense against dangerous food toxin*
PacBio Blog September 2025
Blog post: *2025 Microbiome SMRT Grant Awardees*
ASU Science, Technology and Public Affairs YouTube June 2025
Video: *Smart Cities Explained: How are cities evolving and WHY does it matter?*
Role**:** Writer, editor, and presenter
ASU News September 2024
Research feature: *ASU researchers help control cancer-causing poison in corn*

COMMUNITY INVOLVEMENT

Graduate and Alumni Affairs Committee Member January 2024 - present

- Serve the Biological Design Ph.D. Program by planning graduate student events, organizing seminars, serving on student panels, and publishing a newsletter

Nucleate Arizona Leadership Team January 2023 – present
Director of Strategy (2024 – present); Director of Communications (2023)

- Lead chapter strategy and external programming, developing the Genesis webinar series and engaging biotech founders, investors, and commercialization leaders through speaker interviews, industry events and partnerships across Arizona's life-science ecosystem.
- Develop biotech entrepreneurship and technology-commercialization programming, including authoring the Nucleate AZ BioChallenge pitch playbook guiding participants through ideation, market assessment, competitive strategy, product development and pitching.
- Directed communications and assisted with event operations for chapter launch and outreach initiatives, developing marketing materials and coordinating speakers, venues, AV, catering, and event logistics for programs connecting academic trainees with Arizona's biotech community.

GPSA Research Grant Reviewer September 2023 – August 2025

- Evaluated graduate research proposals across ASU and provided funding recommendations through the Graduate Student Professional Association

City of Phoenix Park Steward July 2022 – June 2025

- Maintained walking and biking trails in the Phoenix North Mountain Park and supported the City of Phoenix Parks and Recreation Department public stewardship events.

Biodesign 20th Anniversary Health and Wellness Team November 2023 – December 2024

- Planned and executed institute-wide health and wellness programming, including a team wellness competition, special events, and a monthly science-themed book club.

GPSA Travel Grant Reviewer January 2023 – December 2024

- Evaluated graduate travel proposals across ASU and provided funding recommendations through the Graduate Student Professional Association

Fairbanks Food Bank June 2020 – June 2022

- Packed and distributed federally funded food-assistance boxes for rural Alaska and the greater Fairbanks community and trained new volunteers on warehouse practices and equipment.

RELEVANT COURSEWORK

- Modern Bioanalytical Techniques
- Biotransformations
- Microbial Bioprocess Engineering
- Molecular Genetics and Genomics
- Introduction to Translational Biotechnology
- Re-engineering the U.S. Healthcare System
- Technology Entrepreneurship
- Data Synthesis

SKILLS

Technical Skills: Analytical chemistry (HPLC, GC, GC-MS, LC-MS), molecular biology (PCR, qPCR, ELISA, DNA/RNA extraction), next-generation sequencing (Illumina, Oxford Nanopore, PacBio), microbiology (microbial culture, anaerobic bioreactors), microbiome analysis (16S rRNA sequencing, metagenomics, metabolomics, functional profiling, bioinformatics), experimental design and method development, statistical analysis, human-subject research (IRB applications, participant recruitment, focus groups), irradiation (X-ray, gamma)
Software: R, Bash, Python, Linux, GitHub, high-performance computing (ASU SOL supercomputer), microbiome software (e.g. QIIME 2, DADA2), Adobe Creative Suite
Languages: English (Native), Spanish (Elementary)

REFERENCES

Available upon request