

Bruce Redden

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Education

Washington State University, Pullman, WA

Expected May 2028

BS in Microbiology

Minors in Genetics and Cellular Biology and Biomedical Ethics

- GPA: 3.89/4.0

Mead Senior High School, Spokane, WA

June 2024

Graduated with Honors, achieved my High School Diploma

- GPA: 3.98/4.0

Collegiate Research Experience

Research Mentor: Dr. Arden Baylink

Aug 2024 - Present

College of Veterinary Medicine, Pullman, WA

- Developing new novel antibiotics targeting the protein AhpC within *Helicobacter pylori*.
- Using X-ray Crystallography and Oxidative Stress Assays, the binding affinity and ligand binding-domain of AhpC and the antibiotics, and the mechanism of death within the bacteria after being introduced to the antibiotic were found, respectively.
- Currently, Tissue Explant Studies are being used to determine the effectiveness of the antibiotics and clear the bacteria from the gastric mucosa.

High School Research Experience

Senior Capstone: Mead Senior High School

Sept 2023 - June 2024

- This project was an independent study no help from teachers
- Ascertained the difference in efficacy between two non-invasive fat reduction methods: laser lipolysis and cryolipolysis.
- To determine the proper length of treatment for the tissues used, fat thickness assessments were used in the process
- This study taught me valuable insights into scientific design and statistical data analysis.

Independent Studies: Mead Senior High School

Feb 2023 - May 2023

- Determine the minimum effective concentration of SPF (sun protection factor) needed to prevent UV-induced mutations in yeast cells. To simulate how human skin cells respond to UV exposure, yeast was used as a model system due to its equal sensitivity to UV.
- To replicate the skin's response to the sun, the yeast were exposed to an equivalent amount of UV radiation. Application of various SPF concentrations to test protective efficacy, yeast mutation, and death tracking using growth assays to measure UV damage.

Skill Set

Technical skills: Explant studies, protein crystallography, X-ray crystallography data collection, micropipetting, microscopy, Southern and Western blotting, plasmid modification, gene transference, data analysis, bacterial cultures, and care

Languages: German (intermediate), ASL (intermediate), Spanish (beginner)

Programming Languages: Python (beginner), R (beginner)

Software: B4, Adxv, CCP4, Phoenix, COOT, ImageJ

Presentations

- Bruce Redden***, Andrea Gomez, Arden Baylink. "Elucidating the H. pylori killing mechanisms of small molecule inhibitors targeting AhpC." **Washington State University Showcase for Undergraduate Research and Creative Activities** (SURCA) Local, Pullman, WA *March 23, 2025*
- Searchable list of 2025 SURCA abstracts [↗](#)
- Bruce Redden***, Andrea Gomez, Arden Baylink. "Optimization of Crystallization Conditions to grow AhpC-ligand crystals." **Northwestern American Society for Microbiologists Meeting** (NWASM) Regional, Seattle, WA *November 2024*
- List of 2024 NWASM Abstracts [↗](#)

Conferences Attended

- WSU Scholars Progression**, Pullman, WA *February 2025*
- Engaged in networking with high-achieving peers and faculty across disciplines. Gained insights into academic success strategies, undergraduate research, internships, study abroad, and nationally competitive scholarships through expert-led sessions.
- Annual Biomedical Research Conference for Minoritized Scientists** (ABRCMS) Virtual. *November 2024*
- I was invited to attend the ABRCMS meeting through my affiliation with the MIRA program at WSU.

Honors and Awards

- WSU honors summer research scholarship *2025*
- Walter L. and Pauline W. Harris Microbiology Endowment *2025*
- WSU Presidents Honor Roll *2025*
- University Achievement Award *2025*
- Invited to the WSU Honors College *2024*
- Esteemed MIRA Program Trainee (NIH R25 EB027606)** *2024*
- Selected as one of five incoming freshman for the Maximizing Access to Research Careers Program*
- Dean's University Achievement Award *2024*
- Biomedical Sciences and Research Department Award, Mead Senior High School *2024*
- Only given to one senior every year at Mead Senior High School*

Teaching and Leadership Experience

- SHAC** (Student Health Advisory Council) (Secretary) *Sept 2024 - May 2025*
- The council serves as a bridge between WSU students and Cougar Health Services by giving students a voice in shaping health policies, voting on health fees, and promoting inclusive physical, mental, and emotional well being across campus, while welcoming diverse student participation at any time throughout the year.
 - Prepared meeting rooms for monthly SHAC meetings by setting up Zoom and meeting templates, recorded and distributed meeting minutes promptly, and coordinated with leadership to maintain accurate council records and documentation.
- HOSA** (Health Occupations for Students of America) (President) *Sept 2020 - June 2024*
- Served as HOSA chapter president by leading meetings, coordinating with officers and advisors, and promoting career awareness, skill development, and service through membership participation in healthcare education, outreach, and networking.

Tutor for Biomedical Sciences Program (Tutor)*Sept 2023 - June 2024*

- Provided academic support to peers in the Biomedical Sciences program by explaining complex concepts, assisting with coursework and lab assignments, and fostering a collaborative learning environment.

Chemistry Club (President)*Sept 2022 - Dec 2022*

- I organized and led meetings, facilitated STEM activities, and encouraged interest in chemistry through experiments, academic support, and science outreach events.

Volunteering

Gritman Hospital Surgical Recovery Wing*Aug 2024 - Current*

- Supported clinical staff by assisting the HUC with supply management, answering call lights, preparing patient rooms, and ensuring medical supplies were up to date, contributing to efficient and patient-centered care.

Bell ringer at Salvation Army*Oct 2021 - Dec 2023*

- During winter I collected donations for local shelters, food pantries, and Sally's House by engaging with patrons at various retail locations; also helped coordinate volunteers and analyzed store-to-donation ratios to optimize fundraising efforts.

Veterans Dinner at the Salvation Army*November 2021 - 2024*

- Prepared meals, set tables, served food, and spent time with veterans during the veterans weekend in November. The program offers companionship to those without family, helping create a warm and respectful environment in honor of their service.

Employment

Crew Member, Crumbl Cookies, Spokane, WA. (20 hours per week)

Jan 2023 - July 2024

Cashier/ Cook, Kentucky Fried Chicken, WA. (10 hours per week)

*Sept 2021- Jan 2023***Club Participation and Extracurricular Activities**

WSU Powerlifting Club

Feb 2025 - Current

MBIOS (Molecular Biosciences) Club

Sept 2024 - Current

WSU Pre-Health Club

Aug 2024 - Current

McNair Scholars Club

Aug 2024 - Current

STAGE club

Aug 2024 - Dec 2024