Elise Bennett
Student in Biotechnology

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Education

- 2021 - Present
    - BS- Biology- Biotechnology from Utah Valley University
    - Expected to graduate in 2025
    - I study the way that we can use the natural processes of organisms to better the lives of all living things. This includes the powerful processes of gene editing, finding mutations, creating diagnostic tests, generating vaccines, and analyzing biological data.

Research Experience

- Plant Pathology Research - Fall 2022 - Present
    - Guided by Dr. Alma Laney
    - Current Project: Beet Curly Top Virus (BCTV) found in Novel Hosts in the Utah
    - BCTV is a highly destructive virus that has the potential to wipe out crops in a region. It infects beets, tomatoes, peppers, and potatoes readily as the beet leafhopper feeds and migrates. I have been working on characterizing and documenting novel hosts.
- iGEM Summer 2023 - Present
    - Guided by Dr. Eric Domyan and Dr. Colleen Hough
    - Internationally recognized competition
    - Our project focuses on the potential of the algae *Chlamydomonas reinhardhii* which we have genetically modified to uptake excessive nutrients, nitrate and phosphate, that aid in the growing of toxic algal blooms on Utah Lake. We presented our research in Paris, France at the competition.

Publications

- “Detection of Beet Curly Top Virus in *Solanum jamesii, Artemisia tridentata, Helianthus annuus, and Cannabis sativa* in Utah” by Elise Bennett, Megan Frisby, Rob Hess, Max Taylor, Erin Riggs, and Alma Laney
    - I worked with my research team to publish our findings on novel hosts of beet curly top virus around the state of Utah. We went through the processes of collecting samples, extracting their DNA, and analyzing the data to confirm our findings.

Internship Experience

- Purdue University May 2024 - July 2024

    - National Science Foundation (NSF) funded research experience for undergraduates (REU). This highly competitive program allows for a hands-on, in depth exploration of research from an R1 institution.
    - I worked on functionally characterizing a Type III effector of the bacterial pathogen Ralsonia. Ralstonia is an economically and agriculturally threatening pathogen found in soil across the US. By characterizing the effectors, disease resistant plants can be made.
- Esplin Biotechnology - January 2021 - April 2021
    - A start-up company that was researching the potential of bacteriophage found in American honey bees
    - I worked to facilitate research by preparing materials, counting colonies, and making media. We were looking for a bacteriophage that could help alleviate colony collapse disorder caused by various bacteria.

Work Experience

- Outschool - We Connect Academy - July 2023 - Present
    - Teaching online life science and French classes to young children
    - I work to inspire children to follow their passions in science. I want them to see that science is broad and has a place for everyone. I also want them to have a more globalized view and to feel accomplished in speaking French.
- Latino Initiative Summer Bridge Program Student Mentor - Utah Valley University June 2022 - August 2022
    - Taught biotechnology to high school students
    - I worked to show high school students of predominantly underrepresented groups that they belong in difficult STEM fields. I supported them through finishing their coursework and succeeding in getting ahead in college.

Leadership

- Honors Ambassador June 2023 - Present
    - Leading student activities and encouraging students to join rigorous classes
    - I work to lead students in bonding activities which allow them to grow closer connections with the Honors Program and have a greater scope of the world around us.
- Honors Resident Leader June 2023 - Present
    - Leading students in how to collaborate and overcome challenges in our community
    - I encourage the hard working students of the Honors Program to foster lasting friendships and positive experiences with other motivated students among them through leading activities.
- Facilitator for the Neurodivergent Affinity Group August 2023 - May 2024
    - Supporting students in creating a safe space for discussions and activities within a diverse group of neurodivergent individuals.
    - I worked with students in planning activities, collecting materials, and marketing events in order to foster connections within the Honors College.

Conferences

- iGEM Grand Jamboree - November 2024
    - This international synthetic biology competition allowed me to answer scientific questions from judges and present our project to a diverse audience. I was a team leader in genetically modifying a green algae to clean up Utah Lake, a heavily polluted lake that is subject to harmful algal blooms annually. I planned and built a biological pathway to remove a vital fertilizer from the lake that contributes heavily to the blooms. I also worked with my team to perform outreach and document our work. Due to this research, I was featured in an interview with our statewide news source.
- APS Plant Health 2023 - August 2023
    - Presented my research on BCTV in the undergraduate research poster session
    - I had the great opportunity to present my research among graduate students and PhD candidates in the world of phytopathology. I was able to network with various graduate programs in my field of research. I now have connections with the USDA and other companies that prepare products for plant diagnostic testing.
- S.P.U.L.P.T Showcase - Spring 2023
    - Utah Valley University's showcase of research performed at the school.
    - I worked to present my BCTV research at a school level where I was able to be judged by professors and had feedback on how to improve. I used this feedback to present at my next conference.

Grants

- S.A.C. Grant for MinION
    - I wrote part of a grant that purchased materials to use for next generation sequencing which allows our lab to sequence viral genomes from our own computers.
- S.A.C. Grant for Grand Gulch Trip
    - I received a grant to go on an expedition to Southern Utah to collect native plants which are infected with a variety of viruses. Surveying for these native plants allows us to protect our local ecosystems from harmful pathogens.
- S.A.C. for Plant Health Conference
    - This grant allowed my lab group to present at the Plant Health Conference in Denver, Colorado.

Certifications

- Utah Seal of Biliteracy
    - Bilingual in French
    - I received the Seal of Biliteracy from the state of Utah after I completed 12 years of schooling in the Dual Immersion Program. I completed courses at the University of Utah while in high school.

Extracurricular Activities

- Biotechnology Club
    - As the treasury for the club, I work to create an inclusive and fun environment to encourage others to explore the world of biotechnology.
- Botany Club
    - I attend various activities in the Botany Club such as growing plants and involving people of various backgrounds to become involved with botany.