Brandy Corwin

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EDUCATION

MS in Biology, Focus in Bioinformatics & Genomics **Anticipated Dec 2026**
University of Oregon, Eugene, OR

BS in Bioinformatics (Honors Program), Minor in Computer Science **May 2025**
University of Wisconsin - Eau Claire, Eau Claire, WI, *summa cum laude*

SKILLS

Programming:	Java, R, Python, C, Bash, SQL
Software/tools:	git/GitHub, STAR, DESeq2, TreeMix, ASTRAL, Snakemake, BLAST, ipyrad, RAxML, RShiny, tidyverse, tidymodels, conda, Benchling, Docker, AmpliCan
Wet Lab:	PCR, gel electrophoresis, NGS library prep

TECHNICAL/RESEARCH EXPERIENCE

Graduate Student Researcher **Oct 2025 – Current**
KCGIP, University of Oregon in collaboration with InVivo Biosystems, Eugene, OR
NGS pipeline development for evaluating CRISPR-Cas9 gene editing used to generate zebrafish (*Danio rerio*) models of human diseases

- Designed and implemented a pipeline to assess CRISPR-Cas9 editing efficiency across multiple cut sites on a target gene using short, paired-end NGS reads, enhancing both accuracy and runtime performance.
- Ensured high-fidelity downstream analysis by conducting quality trimming of sequencing data using Trimmomatic.
- Reported confidence in gene editing efficiency by calculating frameshift mutations, insertions, deletions, and other editing outcomes using the AmpliCan R package.
- Streamlined pipeline usability and improved visual presentation of results by building an interactive user interface using React and Docker.

Undergraduate Researcher (Mitchell Lab) **June 2024 – May 2025**
Biology Department, University of Wisconsin - Eau Claire, Eau Claire, WI
Examination of various flower genomes

- Analyzed sunflower (*Helianthus*) genomes from three species and found no evidence of introgression, transfer of genetic material due to hybridization, in RAD-seq data by independently learning and using ipyrad for sequence assembly and TreeMix for population structure inference.
- Produced phylogenetic trees for South African flowering plants (*Protea*) by independently learning and using RAxML for maximum likelihood estimation and ASTRAL for species tree inference.
- Identified the most data-compatible solution to streamline analysis workflows by assessing and optimizing multiple bioinformatics software tools.
- Effectively communicated complex results to a multidisciplinary audience by designing a poster for sunflower research and presenting the poster at CERCA (Celebration of Excellence in Research + Creative Activity) in undergrad.

Undergraduate Student (Applied Bioinformatics 343 and 443) **Sept 2024 – May 2025**
Biology Department, University of Wisconsin - Eau Claire, Eau Claire, WI
Detection of differentially expressed genes in parasitic worm (*Schistosoma mansoni)* miracidia using bioinformatics algorithms

- Detected differential gene expression in miracidia stage of *Schistosoma mansoni*, comparing individuals found in the liver versus those in intestine, by learning and leveraging an analysis pipeline using STAR and DESeq2, among other algorithms.
- Refactored pipeline into a reproducible workflow using Snakemake to automate dependency resolution, parallel execution, and improve scalability across HPC environments.
- Designed poster presentation explaining and interpreting results of analysis.

Summer Intern **May 2022 – Aug 2022**
Computer science, AbbVie, Lake County, IL
Automation of calculations for speed and accuracy using RShiny script

- Saved time and reduced errors by building an R script for the chemistry department that output results of wanted calculations, like signal to noise ratios, to an Excel spreadsheet.
- Enabled non-technical users to explore and visualize data intuitively, significantly improving accessibility by transforming a static R script into an interactive web application using RShiny.

NON-TECHNICAL WORK EXPERIENCE

Picker and Packer **May 2023 – Aug 2023**
Doheny's, Pleasant Prairie, WI
Oversaw the preparation and packaging of customer orders for shipment

Sales Associate **Aug 2019 – Aug 2021**
The North Face, Pleasant Prairie, WI
Maintained store organization and efficiency, and assisted customers with their needs