Magnolia Morelli

Research Student
Utah Valley University
NSF S-STEM Scholar

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Publications

Morelli, M. W., Blackmon, H., & Hjelmen, C. E. (2022). Diptera and Drosophila Karyotype Databases: A Useful Dataset to Guide Evolutionary and Genomic Studies. *Frontiers in Ecology and Evolution*, *10*. https://www.frontiersin.org/article/10.3389/fevo.2022.832378

Education

Bachelor of Science in Biology

- Utah Valley University, Expected Graduation December 2023
- GPA: 3.71

Associate of Science in Biology

- Salt Lake Community College, Graduated Spring 2020
- GPA: 3.70

Research Interests

Mycology; bioinformatics; ecology; animal/fungal interactions; fungal environment interactions; evolution of species; collections-based research

Funding and Presentations

2022- Biology Department Employee - **$4,705 awarded**

- Student Lab Assistant

Cultural Diversity Resident Waiver - **$2,806 awarded**

- Utah Valley University scholarship for tuition and books

Mycology in the Swamp - **$750 awarded**

- MSA Mentor Student Travel Award

Mycology in the Swamp (Poster)

- Movement of Mushrooms through Ungulates

William A. Sederburg Scholarship Fund - **$1,500 awarded**

- Utah Valley University scholarship for tuition and books

Undergraduate Research Scholarly and Creative Activities Grant - **$2,730 awarded**

- Mycological Society of America Conference travel funding through UVU

The D. Clark and Pam Turner Endowment for Engaged Learning in STEM Research Fellowships - **$3,985 awarded**

- Mycophagy in Ungulates throughout the United States

UVU Mycology Symposium (Poster)

- Movement of Mushrooms Along the Wasatch Front

NSF Student Research Position (Talk)

- Trace Metals in Sport Fish of Utah Lake

Undergraduate Research Scholarly and Creative Activities Grant - **$958 awarded**

- Mycophagy in White-Tailed Deer throughout Northern Utah

UVU NSF Fellowship Presentation (Poster)

- Poster presentation at UVU for Mycophagy in Primates research

2021- National Science Foundation S-STEM Fellowship - **$23,490 awarded**

- Research scholarship with full-tuition funding

Mycological Society of America (Article Spotlight)

- Featured on monthly student spotlight – click here to view

UVU Map the Systems (Talk)

- Presenting research about the shrinking of the Great Salt Lake to a symposium of peers, research professors, and stakeholders

Undergraduate Research Scholarly and Creative Activities Grant - **$1,944 awarded**

- Mycophagy in Primates throughout Costa Rica

2019- Salt Lake Community College Travel Abroad Research Scholarship - **$1,500 awarded**

- Mycophagy in Primates

Research Experience

2022 - **Mycophagy in Ungulates.** Independent research project.
Utah Valley University, Orem, Utah

Collecting ungulate dung to culture and sequence for fungal spores to determine if there is an inadvertent pattern of fungal dispersal by ungulates throughout different environments. Working in Northern Utah, the Ozark Mountains of Arkansas, Costa Rica, and Japan. Each sample is plated and grown to produce a unique fungal colony which is then sequenced and put through BLAST to determine species. Collaborating with the Biology department, data analysis is undergone, patterns are determined, and pathogens and symbionts are found. Funded by Utah Valley University and NSF S-STEM fellowship. Advisor: Geoffrey Zahn.

Mushroom Unknown. Independent research project.
Utah Valley University, Orem, Utah

Whole-genome sequencing of Strobilomyces, Old Man of the Woods. Processes include isolating the DNA, electrophoresis, construction, sequencing, and genome assembly, producing the WGS of Strobilomyces. Working with a geneticist, to determine specific proteins and sequence patterns that will show possible unique workings of the mushroom. Funded by Utah Valley University and NSF S-STEM fellowship. Advisor: Geoffrey Zahn.

Diptera and Drosophila Karyotype Databases. Collaborated research project.
Utah Valley University, Orem, Utah. Texas A&M University, College Station, Texas.

A conglomerate of karyotype and chromosome data. Analysis of information from 538 publications, resulted in a total of 3,474 karyotype records. This data was put onto a website using R studio. The resulting database can be used by other world scientists for future research and investigations. This database is used for the study of sex chromosome systems, evolution, WGS, and mutations among many others. Advisor: Heath Blackmon. www.karyotype.org.

Laboratory Experience

2022-Current **Research Student.** Utah Valley University, Orem, Utah

Working as a research student at UVU, I am paired with a biology advisor. I create my own project and carry them out throughout my academic career. Current research includes Mycophagy in Ungulates and Mushroom Unknown. Throughout my time I write grants and proposals, collect specimens, autoclave, plate/clean fungal colonies, aliquot, catalog, and prepare fungal specimens for PCR and analysis. I also continuously learn new skills within different coding programs such as R studio, python, and SQL.

2020-2021 **ARUP Laboratory.** Salt Lake City, Utah.

Working as a medical laboratory professional I catalog, aliquot, scan, and prepare specimens for use by other health care workers within ARUP including laboratory technicians and medical technologists. Specimens can include blood samples, bacteria cultures, and even organs. Speaking to clients daily, I can solve problems, locate samples, discuss further treatments, and change patient direction if necessary. Actively completed inbound and outbound calls through ARUP's customer service to respond to clients' questions and concerns.

2020 **COVID-19 Response Team, ARUP Laboratory.** Salt Lake City, Utah.

Worked under direct supervision to learn the proper handling of all specimens received at ARUP's central facility and/or University Hospital Clinical Lab and prepare specimens for laboratory testing. My position included such functions as matching patient information, data entry, aliquoting, and scanning documents. This was a short-term position to work with the COVID-19 response team, creating, testing, and assembling kits for the Coronavirus outbreak.

2020 **CZAR Laboratory, University of Utah.** Salt Lake City, Utah.

Working with the University of Utah in the CZAR Lab I conduct the necessary procedures to keep the lab clean and running efficiently. During my hours I work alongside scientists conducting genetic mutation experiments on Zebra fish while following proper laboratory protocol and SOPs.

2017-2019 **Covance Laboratory.** Midville, Utah.

During my time at Covance, I performed any combination of sample management and/or archive tasks, including labeling, receipt, transferring, tracking, inventory, archival, shipping, and disposal of samples and/or materials. Sample accession core tasks, including box opening, inventory/labeling, receipt/store, and pulls/returns. Uses tracking systems as appropriate to maintain sample and study integrity. Accurate protocol and relevant documentation interpretation (i.e., Sample Analysis, Outline,

client paperwork). Document and communicate discrepancies to appropriate personnel and assist with problem-solving. Maintain client and business confidentiality. Ensures adherence to company Global/Regional//Local SOPs as appropriate. Complies with relevant Environmental, Health, and Safety at work regulations and Company Policies. Competent with environmental system monitor as appropriate. Ensures company procedures are followed in relation to security and access to relevant areas and data or sample integrity. May assist with training and development relevant to grade.

Related Training

- Bioinformatics – R Studio, Python, SQL
- Command Line – GitBash
- Fungal Culturing and Isolation
- Google Software Experience
- Infectious Disease Handling and Sample Processing
- Microbiome Analysis Workshop
- Scientific Writing Experience
- Wet and Dry Lab Experience
- Mycology Lab Aide
- Windows Software Experience

Undergraduate Coursework

- General Chemistry I, II
- Organic Chemistry I, II
- Ecology
- Cell Biology
- Genetics
- Molecular Biology
- Statistics
- Physics I, II
- Mycology
- Geology
- Principles of Evolution
- Microbiology
- Microbiology for Health
- Foundation of Computer Science
- Anthropology
- Human Anatomy
- Data Analysis for Biologists
- Herpetology
- Greenhouse Management
- Biological Chemistry
- Animal Behavior

Leadership

2021-Current	National Society of Leadership and Success Inductee
	Mycological Society of America Member
	Secretary of Evolution and Bioinformatics Club
2016-2020	Salt Lake Community College Biology School Tutor
	Salt Lake Community College High Honor Student