

# RYAN M. BOWSER

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Sahuarita, AZ 85629

## EDUCATION

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<b>MS</b>	University of Arizona, Molecular and Cellular Biology Advisor: Dr. Carol Gregorio	Expected: May 2025
<b>BS</b>	University of Arizona, Molecular and Cellular Biology Summa Cum Laude Minor in Biochemistry	Expected: May 2024

## HONORS AND AWARDS

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<b>BRAVO! Award Recipient</b>	2023
<b>Highest Academic Distinction</b>	2022
<b>Dean's List with Distinction</b>	2021
<b>Dean's List</b>	2020
<b>Badger Foundation Scholarship</b>	2020

## RESEARCH EXPERIENCE

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<b>University of Arizona, Tucson</b> <b>Undergraduate/Graduate Researcher, Dr. Gregorio</b>	May 2022 - Current
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- *In-vitro* motility (IVM) assays
- Single cell cardiomyocyte mechanics
- Implemented lab-wide NIH-compliant electronic lab notebooks (ELNs)
- Created the fully automated IVM analysis software, Philament (saving >\$10,000 annually in labor)

<b>STAR Lab, Tucson</b> <b>Laboratory Coordinator, Dr. Stover</b>	August 2023 - March 2024
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- Assisted high school students with individual projects and experimental setup
- Taught student's fundamentals of R and Python, for data analysis
- Graded and provided feedback for research papers and presentations
- Mentored students one-on-one

- Created lesson plans to teach complex subjects such as Principle Component Analysis and Machine Learning at high school level.

**Max Delbrück Center for Molecular Medicine, Berlin**

May – August 2023

**Visting Scientist (BRAVO!), Dr. Gotthardt**

- Performed immunofluorescent microscopy
- Microscopy of human induced pluripotent stem cell cardiomyocytes (hiPSC-CMs)
- Functional analysis of hiPSC-CM contractility with calcium fluorophore, FURA-2
- Prototyped Python software for extraction of contractility data from arrhythmic cells, using wavelet transforms

**University of Arizona, Tucson**

January – May 2022

**Undergraduate Researcher, Dr. Nagy**

- Embryo microinjections, working to establish transgenic lines in *Tribolium castaneum*
- Imaged fluorescent protein expression in *Drosophila* embryos, analyzing enhancer expression

**University of Arizona, Tucson**

May – July 2019

**Summer Intern, Dr. Arnold**

- Designed and carried out independent project on endophytes within *Cupressus sempervirens*
- Plated ~1,600 leaf and stem samples, using sterile technique
- Categorized phenotypes of endophytic bacteria and fungi
- Collaborated with the University of Puget Sound, researching microbiomes of plateau lizards

## TEACHING EXPERIENCE

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**University of Arizona, Tucson AZ**

Spring 2024

**Learning Assistant, Molecular and Cellular Biology**

- Assisted instructors in Cell & Development Biology (MCB 305), an undergraduate course with >100 students, covering: cell signaling, protein trafficking, morphogens, induced stem cells, and cloning
- Gave feedback and tutoring to small groups
- Organized exam study materials for students, coordinating with teaching assistants and professors

**Students Advised**

Benite Luhando, “Comparative Analysis of Machine Learning Algorithms Expression Level”, Saguaro High School (Fall 2023/Spring 2024)

## PUBLICATIONS

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### *Research Articles*

Bowser, R. M., Farman, G. P., & Gregorio, C. C. (2024). Filament: A Filament Tracking program to quickly and accurately analyze in vitro motility assays. Biophysical Reports, 100147. <https://doi.org/10.1016/j.bpr.2024.100147>

### *Conference Posters*

Bowser, M.R., Farman, G.P., and Gregorio, C.C., “Filament: A Filament Tracking Program to Quickly and Accurately Analyze In Vitro Motility Assays,” 35th Annual UBRP Conference, Jan. 20, 2024

Bowser, M.R., Gregorio, C.C., and Farman, G.P., “The Impact of Leiomodin2 (Lmod2) on Actin-Myosin Interactions” 34th Annual UBRP Conference, Nov. 17-18, 2024

## PRESENTATIONS AND TALKS

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**Presentation**, “BRAVO! Datablitz”  
University of Arizona, October 2023

**Article** “From Lab Coats to Berlin Streets: Unveiling the Heart of Scientific Discovery with BRAVO!” UBRP Gazette, September 2023

**Informational Talk**, UBRP Advisory Board  
University of Arizona, April 2023

**Radio Interview**, “KXCI 91.3’s Thesis Thursday”  
Tucson AZ, March 2023

**Informational Talk**, “College & Career in Science”  
Tucson Magnet High School, August 2022

## PROFESSIONAL TRAINING

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**Bloodborne Pathogens and Universal Precautions**  
University of Arizona, May 2023

**Information Security Awareness**  
University of Arizona, April 2023

**Codecademy**

Learn Intermediate Python 3 Course, April 2023

## COMMUNITY SERVICE

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### **Volunteer**

Kino Border Initiative, Nogales MX, August 2022

## LANGUAGES

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**English:** Native Language

**Spanish:** Novice Speaker/Listener

**German:** Novice Speaker/Listener

## COMPUTER SKILLS

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**Programming:** Python (Pandas, Sci-kit learn, NumPy, Matplotlib), R, Bash, Git

**Applications:** Microsoft Office, Photoshop, DigitalOcean, Graphpad Prism

**Platforms:** Windows, Linux/HPC

## OTHER

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United States Citizen

Arizona Department of Public Safety Level 1 IVP Clearance

## REFERENCES

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**Dr. Carol Gregorio**, Senior Associate Dean for Basic Science; Director and Founder, Center for Cardiac Muscle Biology, Cardiovascular Research Institute; Vice Chair of Medicine for Strategic Innovation; Professor of Medicine  
Icahn School of Medicine at Mount Sinai, University of Arizona  
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