
SARAH STAMER

(928) 707-1770 ◊ sstamer@arizona.edu ◊ s.stamer23@gmail.com
www.linkedin.com/in/sarah-stamer/ ◊ www.github.com/sstamer23

EDUCATION

University of Arizona

August 2020 - Present

B.Sc. Astronomy (*with Honors*) & Physics

Overall GPA: 3.809

Member of Phi Beta Kappa, Alpha of Arizona Chapter

Relevant Coursework: Introduction to Observational Astronomy, Dynamics and Mechanics in Astrophysics, Radiation and Matter in Astrophysics, Theoretical Astrophysics I: Stellar (in progress), Theoretical Astrophysics II: Galaxies and Cosmology (in progress)

Arizona in Orvieto (Italy)

May 2023 - June 2023

Coursework: Greek and Roman Religion, Mediterranean Sound Worlds (Honors); GPA: 4.0

Cities Visited: Rome, Tivoli, Florence, Pompeii, and Paestum

Funded by Stamps Scholarship enrichment fund and W.A. Franke Honors College stipend

RESEARCH EXPERIENCE

Undergraduate Research Assistant, Exoplanet Atmospheres

Advisor: Dr. Tyler Robinson. University of Arizona.

January 2024 - Present

- Working on a project using Venus and its atmosphere as an analog to explore post-habitable exoplanets
- Degraded model spectra based on Venusian spectra to simulate the spectra from an exoplanet mission

Astronomy Education Honors Thesis

Advisor: Dr. Chris Impey. University of Arizona.

January 2023 - Present

- Working on a project examining student writing versus expert writing on a culminating assignment within an Astrobiology Massive Open Online Course
- Determine methods of coding and comparison to analyze hundreds of writing assignments to examine the content they include
- Characterize thousands of student writing assignments by the planet they selected and develop a sub-sample for analysis

Undergraduate Research Assistant, Astronomy Education and Science Literacy

Advisor: Dr. Chris Impey. University of Arizona.

June 2022 - May 2023

- Classified 182 articles related to physics and 116 related to astrology as real or fake science
- Found and tagged 165 claim-evidence pairs within the physics articles
- Compiled datasets containing large amounts of real and fake scientific content, and utilized ChatGPT to generate short real and fake science writing samples

Summer REU Intern

Advisor: Dr. Diana Dragomir. University of New Mexico.

May 2022 - July 2022

- Participated in a 10-week program funded by the National Science Foundation
- Used Python code package SPECIES, which calculates the host star's elemental abundances from its spectra, and utilized element abundance data to calculate stellar molar ratios and stellar compositional mass fractions (code on [Github](#))
- Compared compositional mass fractions for stars and planets numerically and graphically to examine trends (code on [Github](#))
- Presented research to department faculty and graduate students at a final poster session for the program

NASA Space Grant Intern

Advisor: Dr. Chris Impey. University of Arizona.

August 2021 - May 2022

- Funded by a grant to the Arizona/NASA Space Grant Consortium, internship awarded to a select number of STEM students each year who submit high-ranking applications to the program
- Found and read papers on the Claim-Evidence-Reasoning Framework, and applied that knowledge while classifying 260 articles as real or fake science and while finding claim-evidence pairs within 110 of the real science articles
- De-identified and compiled 450 student writing assignments from a past general education astronomy course and utilized those assignments by finding and tagging claim-evidence pairs within the assignment content

Undergraduate Research Assistant, Astronomy Education and Science Literacy

Advisor: Dr. Chris Impey. University of Arizona.

January 2021 - May 2021

- Read and classified over 100 articles on various pseudoscience topics to add to a training set for a neural network
- Wrote example assignments and found papers on writing in science-related Massive Open Online Courses (MOOCs) to begin assessing student learning through writing assignments in an astrobiology MOOC

PUBLICATIONS

C. Impey, M. Wenger, N. Garuda, S. Golchin, and **S. Stamer**: *Using Large Language Models and ChatGPT for Automated and Scalable Grading of Student Writing about Science* (in prep).

PRESENTATIONS

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| October 2023 | <i>Combating Fake Science Online</i> (Poster)
2023 Galileo Circle Scholar Celebration
S. Stamer*, C. Impey, M. Wenger, A. Danehy, S. Buxner, et al.
Tucson, AZ |
| August 2023 | <i>Combating Fake Science Online</i> (Presentation)
Astronaut Scholar Technical Conference
S. Stamer
Orlando, FL |
| January 2023 | <i>Using Machine Learning to Detect Science Misinformation</i> (Poster)
241st Meeting of the American Astronomical Society
S. Stamer*, C. Impey, M. Wenger, A. Danehy, S. Buxner, et al.
Seattle, WA |
| January 2023 | <i>Super-Earths, Super-Mercuries, and Solar-Type Stars: Compositional Similarities between Rocky Exoplanets and their Host Stars</i> (Presentation)
241st Meeting of the American Astronomical Society
S. Stamer*, D. Dragomir.
Seattle, WA |
| October 2022 | <i>Super-Earths, Super-Mercuries, and Solar-Type Stars: Compositional Similarities between Rocky Exoplanets and their Host Stars</i> (Poster)
2022 Galileo Circle Scholar Celebration
S. Stamer*, D. Dragomir.
Tucson, AZ |
| April 2022 | <i>Addressing the Pandemic of Science Misinformation on the Internet</i> (Presentation)
31st Annual Arizona/NASA Space Grant Statewide Symposium
S. Stamer, A. Grant.
Tucson, AZ |

HONORS & ACHIEVEMENTS

2023-2024	Evelyn O. Bychinsky Promising Astronomer Award <i>Awarded for outstanding achievements and promise by undergraduate students</i>
2023	Astronaut Scholarship <i>Awarded to 68 junior and senior STEM students from partner universities nationwide</i>
2023-2024	Kenneth S. Krane Scholarship <i>Awarded to junior and senior Physics undergraduates with a 3.5 GPA or higher</i>
2023	Galileo Circle Scholarship <i>Awarded to students within the College of Science for research and academics</i>
2023	Goldwater Scholarship Nominee <i>One of four STEM juniors and seniors nominated from the University of Arizona</i>
2022-2023, 2023-2024	Glenn C. Purviance Scholarship <i>Awarded as one of three outstanding Juniors in Astronomy</i>
2022	Bob and Sue Vaughan Galileo Circle Endowed Scholarship <i>Awarded to students within the College of Science for research and academics</i>
2021-2022, 2023-2024	William Scott and Elizabeth P. Jenkins Scholarship <i>Inaugural recipient, awarded for excellence in sharing astronomy with the public</i>
2020-2024	Stamps Scholarship <i>Awarded a full-ride scholarship, part of Arizona's inaugural Stamps Scholar cohort</i>

EXTRA-CURRICULAR ACTIVITIES & LEADERSHIP POSITIONS

W. A. Franke Honors College Ambassadors (FHA) Co-Philanthropy Chair *August 2023 - Present*

- Plan monthly philanthropy events for ambassadors to engage in service on campus and across Tucson
- Leading a group of seven ambassadors during monthly committee meetings to help plan service opportunities for the club
- Member of the Franke Forum: representing FHA and the Stamps Scholar program, collaborating on shared activities, and connecting with Honors leadership

Tucson Initiative for Minoritized Student Engagement in Science and Technology Program (TIMESTEP) Leader *September 2022 - Present*

- Serve as a peer mentor to fellow astronomy and physics undergraduates by facilitating a positive community that values diversity
- Participated on panels in meetings on navigating the first two years in astrophysics, undergraduate research opportunities, and presenting research

University of Arizona College of Science Ambassador *August 2022 - Present*

- Nominated by the Astronomy Department as one of their highly distinguished undergraduates in the major to assist with prospective student recruitment and community outreach
- Share my story and answer questions in information sessions, assist with large College of Science events, and provide tours to students and families interested in astrophysics
- Awarded the 2022-2023 VIP Visit/Chat Superstar award for hosting the most virtual video chats and in-person VIP Visits for prospective students and their families

University of Arizona Symphonic Band Percussion Section Leader *August 2022 - Present*

- Create part assignments for the section members that are fairly divided between pieces and personnel and play to each person's strengths and preferences
- Collaborate with the ensemble directors and percussion studio members to ensure that all necessary equipment for rehearsal is present and is returned to the correct places after weekly rehearsals

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- Teach and advise non-music majors and music majors learning percussion as a secondary instrument on proper technique and how to perform their parts in preparation for end-of-semester performances

Honors College Ambassadors Social, Philanthropy, and Fundraising Chair *August 2021 - May 2022*

- Worked with another member of the Leadership Team to create and setup a big-little system of members based on common interests
- Planned two separate fundraising events at local restaurants, created graphics to promote the events, and raised over \$150 for the club

OUTREACH EXPERIENCE

NASA Partner Eclipse Ambassador

Tucson, AZ.

September 2022 - Present

- Completed training on eclipse information and how to effectively share it with the public
- Working with an amateur astronomer partner to find events to participate in, and create deliverables and activities for these events that are engaging and scientifically accurate
- Engaged with over 400 community members and visitors at the 2023 Tucson Festival of Books, and with over 100 community members at the 2023 Tucson Astronomy Festival

Science Center Interpreter and Planetarium Operator

Flandrau Science Center and Planetarium, Tucson, AZ.

August 2021 - Present

- Trained for three months to become a planetarium operator by learning how to operate UniView software for different shows and shadowing other operators
- Presenting planetarium shows weekly on a variety of science topics, ensuring they are unique, educational and accessible to the audience, and enjoyable
- Utilize science knowledge and knowledge of the exhibits to provide different experiences to guests to enrich their understanding and appreciation of science