

Madysen Barber

Website: madysonb.github.io

Email: madysonb@live.unc.edu

Education

University of North Carolina at Chapel Hill

- Ph.D., Physics & Astronomy, in progress
- M.S., Physics & Astronomy, December 2023
- B.S., Astrophysics (Highest Honors) & Computer Science, May 2022

Publications

First Author:

[*“Transit Hunt for Young and Maturing Exoplanets \(THYME\) VIII: a Pleiades-age association harboring two transiting planetary systems from Kepler”*](#)

Barber, Madysen G.; Mann, Andrew W.; Bush, Jonathan L.; et al.; AJ 2022.

[*“Using the Gaia Excess Uncertainty as a Proxy for Stellar Variability and Age”*](#)

Barber, Madysen G.; and Mann, Andrew W.; ApJ 2023.

Co-Author:

[*“TESS Hunt for Young and Maturing Exoplanets \(THYME\) VI: an 11 Myr giant planet transiting a very low-mass star in Lower Centaurus Crux”*](#)

Mann, Andrew W.; Wood, Mackenna L.; Schmidt, Stephen P.; **Barber, Madysen G.**; et al.; AJ 2021.

[*“TESS Hunt for Young and Maturing Exoplanets \(THYME\). IX. A 27 Myr Extended Population of Lower Centaurus Crux with a Transiting Two-planet System”*](#)

Wood, Mackenna L.; Mann, Andrew W.; **Barber, Madysen G.**; et al.; AJ 2023.

Grants, Honors, and Awards

NSF Graduate Research Fellow, 2023	\$159,000
TESS Cycle 6, 2023	\$70,000
<i>The Search For Additional Planets In Known Young Planetary Systems</i>	
North Carolina Space Grant Graduate Research Fellowship, 2023-2024	\$10,000
<i>Searching for Young Transiting Exoplanets</i>	
Robert N. Shelton Award for Outstanding Research in Physics, 2022	
Phi Beta Kappa 2020-present	
North Carolina Space Grant Undergraduate Research Scholarship, 2021-2022	\$8,000
<i>Young Exoplanets Vetting and Discovery</i>	
UNC Chancellor’s Science Scholar (CSS) Cohort Six, 2018-2022	\$40,000
Chancellor’s Science Scholars Service Award, 2022	
In recognition of outstanding Teaching, Mentorship, and Outreach	
Distinguished Scholar, 2020-2022	\$5,000
Summer Research Funding Award, 2021	\$5,000

Presentations

Invited Talk - TESS Single Transit Planet Candidates Working Group - December 2023

Invited Talk - JPL Exoplanet Group - October 2023

Masters Thesis Defense - August 2023

Emerging Researchers in Exoplanet Science VII - August 2022

NC Space Symposium - April 2022

Invited Talk - Astronomy on Tap in the Triangle - April 2022

Honors Thesis Defense - March 2022

Invited Presenter - UNC Board of Governors Research Showcase - February 2022

AAS Winter Conference Poster Presentation - January 2022 (Canceled)

UNC CSS Annual Research Symposium - October 2021

UNC Summer Undergraduate Pipeline Presentation - July 2021

Sigma Xi Annual Meeting and Student Research Conference - November 2020

NASA Summer Intern Presentation Symposium - August 2020

Relevant Experiences

University of North Carolina Department of Physics and Astronomy, Chapel Hill, North Carolina

Graduate Research Assistant, August 2022-Present

Work with Dr. Andrew Mann's astrophysics lab to study exoplanet evolution patterns. Working to increase the number of known young exoplanets by executing a large scale survey of stars in young stellar associations.

Experience observing with SOAR

University of North Carolina Chancellor's Science Scholars, Chapel Hill, North Carolina

Instructor and Mentor, June 2022-July 2022 & June 2023-July 2023

Developed and taught a weekly 90-minute introductory computer science workshop to incoming first-years during their Summer EXCEerator program. Mitigated interpersonal conflicts, led conversations surrounding imposter syndrome and mindfulness, and prepared the students for their future academic work.

University of North Carolina Department of Physics and Astronomy, Chapel Hill, North Carolina

Undergraduate Research Assistant, January 2020-May 2022; **Postbac Researcher**, June 2022-August 2022

*Work with Dr. Andrew Mann's astrophysics lab to write automated queries and planet searches. Currently working on identifying and characterizing young exoplanets. **Experience observing with SOAR***

University of North Carolina Department of Computer Science, Chapel Hill, North Carolina

Undergraduate Teaching Assistant, August 2019-May 2022

Work with students in the introductory Computer Science class for majors and non-majors (~600 students per semester). Assist during office hours answering conceptual questions and helping with homework. Mentor for first-year TAs.

NASA Goddard Space Flight Center Exoplanet and Stellar Astrophysics Lab, Greenbelt, Maryland

Summer Intern, June 2020-August 2020

Worked with Dr. Joshua Schlieder analyzing and vetting new exoplanet candidates from TESS full-frame imaging utilizing a Monte-Carlo-based modeling approach.