

# Madyson Barber

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## **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 Manuscripts:

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

**Barber, Madyson 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, Madyson G.**; and Mann, Andrew W.; ApJ 2023.

[\*“TESS Investigation—Demographics of Young Exoplanets \(TI-DYE\). II. A Second Giant Planet in the 17 Myr System HIP 67522”\*](#)

**Barber, Madyson G.**; Thao, Pa Chia; Mann, Andrew W.; et al.; ApJ Letters 2024.

Select Co-Author Manuscripts:

[\*“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, Madyson 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, Madyson G.**; et al.; AJ 2023.

## **Grants, Honors, and Awards**

NSF Graduate Research Fellow, 2023-2027

W. M. Keck Observing Time 2024B

*Accretion onto a 3Myr transiting planet*

TESS Guest Observing Program Cycle 6, 2023

*The Search For Additional Planets In Known Young Planetary Systems*

North Carolina Space Grant Graduate Research Fellowship, 2023-2024

*Searching for Young Transiting Exoplanets*

Robert N. Shelton Award for Outstanding Research in Physics, 2022

Phi Beta Kappa 2020-present

North Carolina Space Grant Undergraduate Research Scholarship, 2021-2022

*Young Exoplanets Vetting and Discovery*

UNC Chancellor’s Science Scholar (CSS) Cohort Six, 2018-2022

Chancellor’s Science Scholars Service Award, 2022

In recognition of outstanding Teaching, Mentorship, and Outreach

Distinguished Scholar, 2020-2022

Summer Research Funding Award, 2021

## **Posters and Presentations**

Contributed Talk - TESS Science Conference III - July 2024

Talk - Linking Planet Formation with Present-Day Atmospheres Workshop, Heidelberg, Germany - July 2024

Poster - Exoplanets V Conference, Leiden, Netherlands - June 2024

Poster - NC Space Symposium - March 2024

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

Invited Talk - JPL Exoplanet Group - October 2023

Masters Thesis Defense - August 2023

Poster - Emerging Researchers in Exoplanet Science VII - August 2022  
 Poster - 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  
 Poster - AAS Winter Conference Poster Presentation - January 2022 (Canceled)  
 Poster - UNC CSS Annual Research Symposium - October 2021  
 Talk - UNC Summer Undergraduate Pipeline Presentation - July 2021  
 Poster - Sigma Xi Annual Meeting and Student Research Conference - November 2020  
 Talk - 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 and Keck-KPF***

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

*Worked 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

*Worked 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.*