

NATHAN SHAW

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EDUCATION

TRUMAN STATE UNIVERSITY, KIRKSVILLE, MO

Bachelor of Science in Physics, (Astrophysics track)

Minors: Mathematics, STEM Research

May, 2025

GPA: 3.8/4.0

PRESENTATIONS

OBSERVING AND ANALYZING EXOPLANET TRANSITS FOR THE TESS FOLLOW-UP OBSERVING PROGRAM

Spring 2023

- 2023 Missouri Space Grant Consortium
- Truman State Student Research Conference

RESEARCH EXPERIENCE

OBSERVING AND ANALYZING EXOPLANET TRANSITS FOR THE TESS FOLLOW-UP OBSERVING PROGRAM

Fall 2022 – Present

Mentor: Dr. Vayujeet Gokhale

Truman State University, Kirksville, MO

- Observe candidate exoplanet transits using 31 and 42-inch telescopes at the National Undergraduate Research Observatory (NURO) in Flagstaff, AZ, and submitted the transit data for the TESS Follow-Up Observing Program (TFOP)
- Results: 26 Exoplanet transits detected and analyzed, 6 submitted to TFOP
- Skills: Process astronomical images, conduct multi-aperture differential photometry, and extract eclipse data such as timing, depth, and duration using AstroImageJ

VOLUNTEER AND OUTREACH EXPERIENCES

ASTRONOMY/DARK SKY OUTREACH

Spring 2022 – Present

- Organize stargazing events on Truman's campus and at various locations around Kirksville and Missouri (Around 10-15 events per semester)
- Operate our Unistellar eVscopes and the 17-inch CDK Planewave telescope while sharing information about various nebulae, clusters, and galaxies at these events
- Present Dark Sky information at events around Kirksville during International Dark Sky Week

TRUMAN STATE SCIENCE OLYMPIAD VOLUNTEER

Annually 2022 – 2024

- Proctor and write exams in meteorology and astronomy for middle and high school students

DEL AND NORMA ROBISON PLANETARIUM VOLUNTEER

Fall 2023 – Present

- Wrote, coded, and presented my own show, *DESTINATION: The Skies Above Us*, in five public showings

PHYSICS/ASTRONOMY TUTOR

Spring 2023 – Present

- Volunteer weekly as a tutor for Truman State's Physics Department through the Society of Physics Students

LEADERSHIP AND EXTRACURRICULARS

SOCIETY OF PHYSICS STUDENTS

Fall 2021 – Present

- *Vice President* (Fall 2023 – Present) – *Member* (Fall 2021 – Spring 2023)
- Manage daily tutoring operations within the physics department, serve as risk management officer, and designed t-shirts

PHI MU ALPHA MUSIC FRATERNITY

Fall 2022 – Present

- *Activities Director* (Fall 2023 – Present) – *Member* (Fall 2022 – Spring 2023)
- Plan impactful activities and recitals to foster growth and bonds within the community

STATESMEN MARCHING BAND

Fall 2021 – Present

- *Section Leader* (Fall 2022 – Present) – *Member* (Fall 2021 – Spring 2022)
- Guide and mentor incoming freshmen to facilitate a smooth transition into both college and music

SAXOPHONE STUDIO

Fall 2023 – Present

- *Music Arranger/Member* (Fall 2023 – Present)
- Arrange music for the ensemble to play at the semesterly recitals

WORK HISTORY

Truman State University, Kirksville, MO

Aug 2023 – Present

OBSERVATORY MANAGER/ASTRONOMY LAB TEACHING ASSISTANT

- Assisted with astronomy lab setup
- Aided student learning by offering guidance during lab and sharing my general astronomy knowledge
- Planned and operated the telescopes/observatory during open-house events
- Managed regular upkeep of observatory equipment including 17-inch CDK Planewave telescope

Main Event Entertainment, Kansas City, MO

Feb 2021 – Present

BOWL/GAMES TRAINER

- Trained new employees in multiple departments on operations and guest interaction
- Safely operated the gravity ropes course by harnessing and monitoring guest safety
- Handled transactions through the store's point-of-sale system

Tiffany Ridge Elementary School, Kansas City, MO

June 2023

ESY SPECIALIZED TEACHING ASSISTANT

- Worked one-on-one with elementary-aged nonverbal special education students in a self-contained classroom
- Supported teachers with classroom management and documented students' behaviors in their Individualized Education Plans (IEPs) to track goals
- Ensured student success in a collaborative environment

RELEVANT COURSEWORK

PHYS 331 – INTRO TO STELLAR ASTROPHYSICS

Spring 2023

- Studying stellar structure and the evolution of single and binary stars as well as focusing on the theoretical concepts and methods used by astronomers and astrophysicists to study the surface properties of stars and stellar interiors

PHYS 346 – OBSERVATIONAL ASTRONOMY

Spring 2022

- Conducted a research project on light curve analysis of eclipsing binary systems and learned how to operate a CCD camera, process and generate light curves using MaxIMDL and Excel, and access archival astronomical data from Kepler and TESS

PHYS 131 – INTRO TO ASTRONOMY

Fall 2021

- Learned the basic descriptions and classifications of stars and galaxies, as well as apparent sky motions, telescopes and astronomical instrumentation, the cultural relevance of astronomy, and observational basics at the Truman Observatory

CONFERENCES AND WORKSHOPS

AMERICAN ASTRONOMICAL SOCIETY (243RD MEETING)

Winter 2024

- Foundations of Astronomical Data Science 2-day Workshop

2023 MISSOURI SPACE GRANT CONSORTIUM SPRING MEETING

Spring 2023

TRUMAN STATE STUDENT RESEARCH CONFERENCE

Spring 2023

SCHOLARSHIPS AND ACHIEVEMENTS

TRUMAN STATE STEP SCHOLARS

STEM Talent Expansion Program

TRUMAN STATE UNIVERSITY PRESIDENT'S LIST

Fall 2021, Spring 2023

TRUMAN STATE UNIVERSITY VICE PRESIDENT OF ACADEMIC AFFAIR'S LIST

Spring 2022, Fall 2022, Fall 2023

REFERENCES

Dr. Vayujeet Gokhale

Professor of Physics

Truman State University

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(660) 785-4594

Relationship: Faculty Advisor

Dr. Colin DeGraf

Assistant Professor of Physics

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Relationship: Professor