TIMESTEP Research Apprenticeship Program

Preparation for Research Positions and Technical Internships in Physics and Astronomy

TIMESTEP is offering a skills-based apprenticeship to University of Arizona students majoring in astronomy and/or physics. Many research opportunities and internships require prior experience utilizing coding and lab skills. This program will allow you to build technical and professional skills in a research environment, preparing you to be competitive for research positions and programs (ex. NASA Space Grant Fellowship, UROC, REUs, etc.) and/or a position in TIMESTEP's Summer Tech Internship Program with a local employer.

Program details:

- Runs September 2025 through April 2026
- Accepting students who will be in their 2nd year of study (or equivalent) as an astronomy and/or physics major.
- Prerequisites (can be transfer credits or high school AP exam credits):
 - One of CSC 110, ECE 175, or an equivalent intro to computer programming in Python.
 - Calculus I (Math 122AB or Math 125) and Calculus II (Math 129)
 - o Phys 141 or 161H
- Pay is for 5-10 hours per week @ \$16.50 per hour
- You will attend weekly meetings/ workshops with your cohort. Meetings will occur <u>every Friday afternoon (time TBD)</u>.
- You'll join a research group for either:
- Computing Research in Astrophysics, or
 Hardware & Software (Instrumentation and Optics) in Astrophysics

Skills and Training:

CORE (completed by all interns)

- Reading scientific papers
- Literature review & NASA Astrophysics Data System
- Linux Command Line
- Python
- Version control- Git, GitHub, Git Client
- Overleaf- LaTeX
- Debugging (reading error messages/Stack overflow)
- Visualizing data (Matplotlib)

ADDITIONAL (project-dependent)

- Networking (SSH)
- Creating block diagrams
- UA High Performance Computing (HPC)
- Computer vision (image processing-eg. OpenCV and some Scikit image processing features)
- Databases, SQL
- Drafting (r/t Solidworks, CAD)
- Basic optics
- Machine learning (e.g. PyTorch)
- Instrumentation/lab skills- soldering, circuitry, signal generator, 3D printing, Raspberry pi & Arduino

Applications open Friday, April 19th and close at midnight Sunday, May 19th

The application and additional information can be found on our website: timestep.arizona.edu

Reach out to us at <u>timestep@arizona.edu</u> with any questions.









RESEARCH, INNOVATION & IMPACT