

## Calvin Sprouse

Full Time Student and Part Time Tutor in Physics and Math, Central Washington University (CWU), Ellensburg, Washington  
sprousecal@gmail.com — (425) 260-2368 — [www.linkedin.com/in/calvin-sprouse](http://www.linkedin.com/in/calvin-sprouse)

## RESEARCH INTERESTS

---

Theoretical Physics, Quantum Gravity, High Energy Physics, Astroparticle Physics, Particle Physics

## EDUCATION

---

**Central Washington University**, Ellensburg, Washington  
B.S. Physics  
Minors in Astronomy and Mathematics

September 2020 — June 2024  
Cumulative GPA: 3.73/4.00

## ACADEMIC EXPERIENCE

---

### CWU Tutoring Center

*Lead Tutor*

Ellensburg, Washington  
September 2022 — Present

- Work with students by drop-in or appointment on math issues in any STEM course.
- Reinforce study habits with a focus on math concepts.
- Develop and give trainings to fellow tutors according to CRLA standards.
- Perform office tasks associated with running a tutoring center.

### CWU Tutoring Center

*Peer Assisted Learning Physics Tutor*

Ellensburg, Washington  
September 2022 — Present

- Provide individual and group help to students in any physics course.
- Reinforce study habits with a focus on physics concepts.
- Create session plans targeted to introductory physics students.
- Regularly interact with professors of introductory classes to advertise and discuss upcoming coursework.

### CWU Department of Physics

*TA for PHYS 303 Observational Astronomy*

Ellensburg, Washington  
June 2023

- Developed astronomy focused lesson plans for a quarter long course.
- Taught lessons using a planetarium.
- Taught students how to identify constellations and use celestial coordinate systems using only their eyes.
- Evaluated students throughout the quarter.
- Led observational sessions and mentored students doing research on the CWU research telescope.

### CWU Department of Physics

*TA for PHYS 181 Introductory Physics with Lab*

Ellensburg, Washington  
September 2023 — Present

- Worked in the classroom to assist with labs.
- Graded student assignments and provided feedback.
- Provided explanations to students in class on lecture material.
- Read and discussed physics teaching literature as part of an accompanying class.

### Northwest Earth Space Science Pathways Student Assistant

*Peer Assisted Learning Physics Tutor*

Ellensburg, Washington  
September 2022 — June 2023

- Helped create robotics curriculum for K-12 student teams.
- Hosted week-long summer camps for students to learn robotics.
- Taught K-12 students engineering and programming.

### After School Robotics Instructor

*Peer Assisted Learning Physics Tutor*

North Bend, Washington  
2013 — 2020

- Taught K-12 students skills in teamwork, leadership, engineering, programming, and project management.
- Mentored competitive FIRST student teams.
- Coordinate with other student teachers to provide classes to an entire school district.

## PROJECTS

---

### Computational Models of Neuronal Cytoskeleton

*Undergraduate Student Researcher*

CWU - NSF  
June 2022 — Present

- Develop computational models on the mechanics of the neuronal Cytoskeleton in MatLab.
- Developed data visualizations in Python.
- Presented work at 6 research conferences including PhysCon 2022, the Biophysical Society Meeting 2023, and soon 2024.
- Made posters and presentations for conferences.
- Wrote user guides and kept a lab notebook documenting procedures.

### Construction of a new Spectrograph for the CWU 0.6m Research Telescope

*Undergraduate Student Researcher*

CWU - NSF  
September 2022 — June 2023

- Programmed data reduction notebooks in Python for an under construction spectrograph.
- Researched data analysis methods for using spectrograph data.

### Characterization of CWU 0.6m Telescope Precision

*Undergraduate Student Researcher*

CWU  
March 2022 — June 2023

- Created and executed methods to reliably measure variable stars.
- Wrote Python scripts to automatically control a research telescope.
- Wrote Python scripts to preform data analysis on hundreds of observations.
- Presented this research at two research conferences.

### Development of a Magneto Caloric Testing Apparatus

*Undergraduate Student Researcher*

CWU  
January 2023 — Present

- Developed software in Python for an Arduino controlled measurement device.
- Research sampling material for device calibration.

### Calculating the Energy of IceCube Neutrino 190331A

*University of Wisconsin Madison Astrophysics REU Summer 2023*

- Developed Monte Carlo simulations for calculating neutrino energies.
- Worked with IceCube data.
- Learned to work within IceCube data analysis protocols.
- Learned to work with large research teams and follow data handling procedures.

### CWU Learning Commons Math Center Data Analysis

*Lead Tutor*

- Handled sensitive student data according to FERPA guidelines.
- Wrote Python scripts to process student data from a variety of formats.
- Used data collected in the math tutoring center to answer questions and improve tutoring.

## PUBLICATIONS

---

### Biophysical Society Meeting 2023 Poster Abstract

- Craig et. al. (2023). Self-organization of the microtubule cytoskeleton in developing axons. Biophysical Journal Abstract, doi.org/10.1016/j.bpj.2022.11.1506
- Sprouse et. al. (2024). The Highest-Energy Astrophysical Muon-Neutrino: 190331A. American Astronomical Society 243rd Meeting.

## SELECTED COURSES

---

- PHYS 292 Exploring Physics Teaching
- MATH 260 Sets and Logic
- MATH 314 Probability and Statistics

## AWARDS

---

### Sigma Pi Sigma Department Nomination

Nominated by the Physics department for academic excellence and volunteer service.

CWU Department of Physics  
June 2023

## SKILLS

---

- **Computer Science:** Python scripting, simulations, and data science; MatLab; Mathematica; Git; GitHub; L<sup>A</sup>T<sub>E</sub>X