CARDEN TAYLOR

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EDUCATION

Colorado School of Mines — Golden, CO *Expected Dec 2028*
B.S. in Geophysical Engineering, Minor in Applied Mathematics and Statistics
Cumulative GPA: 3.54 | Geophysics: 4.0 | Minor: 4.0 | Dean's List: Spring 2026

- **Relevant Coursework:** Introduction to Geophysics, Introduction to Earth Materials, Physics I–II, Calculus I–III, Linear Algebra, Ordinary Differential Equations, Introduction to Data Science, Introduction to Statistics, Introduction to Earth and Environmental Systems, Paleoclimatology and Paleoceanography

TECHNICAL PROJECTS

Non-Linear ODE-Based Transient Radiative-Convective EBM *Sept 2026 – Present*

- Conducting informal mentored research with a scientist at NSF NCAR to extend the zero-dimensional framework into a one-dimensional multi-layer atmospheric radiative transfer model by incorporating vertical temperature stratification and differential absorption coefficients
- Developed and validated a zero-dimensional transient energy-balance climate model integrating IPCC radiative forcing parameterizations, implementing numerical integration (Forward Euler) to simulate climate sensitivity trajectories against NASA GISTEMP v4 observations, achieving an RMSE of 0.2369°C

Multivariate Regression Analysis of Exoplanet Discovery Trends *May – June 2026*

- Curated and preprocessed observational datasets of 5,000+ confirmed exoplanets from the *Encyclopaedia of Exoplanetary Systems* using Python (Pandas/Jupyter) to address detection bias
- Benchmarked degree-4 polynomial regression against Random Forest models to isolate temporal discovery trends and evaluate residual variance across multi-dimensional planetary parameters

Fluvial Acidification and Environmental Impact Analysis *Feb – May 2026*

- Designed and executed a spatial field sampling study across 10 locations along Clear Creek, CO, establishing upstream control sites to isolate hydrogeochemical impacts of legacy mining activity
- Applied one-way ANOVA hypothesis testing across multi-site pH datasets, demonstrating statistically significant localized acidification ($p = 2.3 \times 10^{-4}$) downstream of mine discharge outfalls relative to baseline controls

EXTRACURRICULAR INVOLVEMENTS

Climate@Mines – Founder & President
Colorado School of Mines

- Founded a registered student organization focused on climate literacy, scientific outreach, and climate advocacy in order to foster community engagement with Earth's climate system
- Developed organizational structure, membership recruitment, and partnerships with climate researchers

Society of Student Geophysicists (SSG) — Member, 2026
Colorado School of Mines
Denver Geophysical Society (DGS) — Student Member, 2026
Society of Exploration Geophysicists (SEG) — Member, 2026
Denver Geophysical Society, Colorado School of Mines
American Geophysical Union (AGU) — Student Member, 2026

WORK EXPERIENCE

School of Earth, Space and Planets Assistant *Aug 2026 – Present*
Colorado School of Mines – Golden, CO

- Assisting the coordination of public outreach and geophysics demonstrations for the School of Earth, Space, and Planets, translating complex Earth science concepts for diverse audiences
- Representing the Department of Geophysics at recruitment symposia, mentoring 100+ prospective undergraduate students on research pathways and geophysical engineering curricula
- Providing logistical support to department faculty and maintain the student-run areas of the school

Barista – Shift Lead *July 2023 – Dec 2025*
PJ's Coffee of New Orleans – Fort Worth, TX

- Supervised daily shift operations and trained 10+ new team members in a high-volume environment

SKILLS

- **Geophysical Methods:** Electrical Resistivity Tomography (ERT), Hydrogeochemical Analysis, Gravity Surveying, Geodesy
- **Computational Methods:** Numerical Integration, Regression Analysis, Machine Learning, Exploratory Data Analysis
- **Programming:** Python (NumPy, Pandas, scikit-learn), Java, MATLAB, JavaScript, C++, Git, SolidWorks, ResIPy, HTML, CSS
- **Statistical Methods:** ANOVA, Hypothesis Testing, Multivariate Regression, Statistical Validation, Principal Component Analysis (PCA)

CERTIFICATIONS

- **NASA Applied Sciences Remote Sensing Training (ARSET)** – Certificate of Completion (2026)
- **Understanding Climate Data** – *Copernicus Climate Change Service (C3S) / European Centre for Medium-Range Weather Forecasts (ECMWF) / Wageningen University & Research* – Certificate of Completion (2026)
- **Climate Change: From Learning to Action** – *UN CC:Learn (United Nations)* – Certificate of Completion (2026)