

# Rowan R. Terra

Biogeochemistry Ph.D. Candidate and ORISE Research Fellow



+1 (412) 443-2364



rowan.r.terra@gmail.com



Pittsburgh, PA, USA



rowan-terra

## EDUCATION

### Duquesne University

Ph.D. in Biological Sciences  
Pittsburgh, PA  
*Currently Enrolled*

### Carnegie Mellon University

Graduate Coursework in Biology,  
Chemistry, and Computer Science  
Pittsburgh, PA  
*Currently Enrolled*

### University of Pittsburgh

M.A.T. in Science (2020)  
B.S. in Biological Sciences (2019)  
Pittsburgh, PA

## SKILLS

### General

- Biological Mining
- Geochemistry
- Machine Learning
- Field Surveys
- Mentorship

### Languages

- Python
- R
- JavaScript
- HTML

### Instrumentation

- IC
- ICP-MS
- SEM + EDS
- Confocal

### Writing

- Manuscripts
- Grants
- Audits
- SOPs

## PUBLICATIONS

### Published

- Terra, R., Parker, C., Martinez, M.I. (2025). Mountain Pass Rare Earth Mine Inspires a New Generation of Economic Geoscience Professionals. *SEG Discovery*. 140.

### In Progress

- Terra, R., Gulliver, D., Beebe, M., & Trun, N. (2025). Spatiotemporal Biogeochemistry of a Critical Mineral Rich Abandoned Mine Drainage Passive Remediation System.

- Terra, R., Gulliver, D., DiGirolamo, P., Cann, I., & Trun, N. (2025). Rare Earth Element Prospecting Through Machine Learning Using Indicator Metals and Microbiology.

## SUMMARY STATEMENT

I am a Ph.D. candidate conducting research on biogeochemical processes in abandoned mine drainage at Duquesne University and NETL-DOE under an ORISE research fellowship. My current projects characterize AMD feedstocks using field and computational methods while also exploring microbiological avenues for critical mineral extraction and recovery.

I have a decade of research experience spanning biological, chemical, ecological, and computational sciences. These opportunities have helped me flesh out my preference for multi-disciplinary approaches to scientific questions.

## RECENT EXPERIENCE

### Graduate Researcher and Teaching Assistant

2022 - Current

*Duquesne University*

*Pittsburgh, PA*

- Use microbiological culture and enrichment techniques to elucidate avenues for biological mining of unconventional critical mineral feedstocks.
- Determine microbiological metabolic pathways contributing to findings in field and laboratory experimentation using assays and sequencing analysis.
- Investigate synthetic biology approaches in macromolecule design and microbial community composition.
- Mentor undergraduate and graduate student learners in the lab and field.
- Instruct biology laboratory coursework for >100 undergraduate student learners.

### ORISE Research Fellow

2023 - Current

*Dept. of Energy, National Energy Technology Laboratory*

*Pittsburgh, PA*

- Characterize unconventional critical mineral and microbiological feedstocks for extraction of industrially relevant metals using ICP-MS, IC, and SEM.
- Developed a tool to test many machine learning approaches on published datasets to identify untapped rare earth element feedstocks using cheap indicator molecules and historic surveys.
- Standardized field and biological mining techniques through technical presentations to ensure data across laboratory groups is comparable.
- Contributed to geochemical theory by explaining field precipitation trends that alter from expected geochemical modeling software.

### Principal

2024 - Current

*Terra Artificial Intelligence*

*Pittsburgh, PA*

- Assist clients in acquisition, visualization, and analysis of datasets across STEM and educational subfields.
- Design and implement machine learning approaches for classification, regression, and clustering to extract insights and enhance predictive capabilities.