Congratulations 2019 Earth and Environmental Sciences Graduates!

**PhD Dissertations**

**Will Bender**  
Quantum-mechanical evaluation of the thermodynamics and kinetics of environmentally-relevant actinide reactions

**Tristan Childress**  
Fingerprinting Source Fluids of Iron Oxide-Copper-Gold and Iron-Oxide-Apatite Deposits Using Traditional and Non-traditional Stable Isotope Geochemistry

**Sharon Grim**  
Genomic and functional investigations into seasonally-impacted and morphologically-distinct anoxygenic photosynthetic cyanobacterial mats

**Samuel Haugland**  
Seismic Investigations of Small-Scale Thermochemical Heterogeneity in Earth’s Deep Interior

**Youngjae Kim**  
Experimental and quantum-mechanical approaches to explore oxide, phosphate, and sulfate minerals as redox catalysts, geochemical probes, and the stability of their solid solutions

**Brian Konecke**  
Sulfur in apatite as a volatile and redox tracer in magmatic and magmatic-hydrothermal systems

**Conrad Luecke**  
Motions in The Oceans: Potential and Kinetic Energy, and Turbulent Dissipation

**Erin Lynch**  
Geofluids and mountain building: Integrated isotopic studies of deformed, clay-rich rocks

**Kelly Matsunaga**  
Fossils, fruits, and phylogeny: An integrative approach to understanding the evolutionary history of palms (Areaceae)

**Kathryn (Katy) Rico**  
Controls on the sediment geochemistry of a low-oxygen Precambrian analogue

**BS Earth and Environmental Sciences**  

**Brennan Booker**  
Sirawich Pipatprathanporn  
Rose Popma  
Alec Reznich  
Sally Ruan  
Kendall Schissler  
Serena Scholz  
Renee Soulliere  
Kathy Sun  
Samantha Theuer

**Zachary Brodkey**  
Heather Young  
Gregory Cogut  
Daniel Dubcek  
Lydia Whitbeck  
Renee Soulliere  
Bethany Rookus  
Tatiana Cuevas

**Emily Cox**  
Samantha Theuer  
Kajsa Lundeen  
Stacy Kaneko  
Elena Folgueras  
Margaret Hammond  
Cassandra Jordan  
Danielle Ziaja

**August Danz**  
Emma Kaznowski

**Ian Donnelly**  
Kathryn (Katy) Rico

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Fossils, fruits, and phylogeny: An integrative approach to understanding the evolutionary history of palms (Areaceae)

**Sammy (Kajsa) Lundeen**

**Stacy Kaneko**

**Elena Folgueras**

**Margaret Hammond**

**Cassandra Jordan**

**Danielle Ziaja**

**Thomas Flynn**

**Kelsey Golembieski**

**Trevor Goodrum**

**Ashley Hamersma**

**Bradley Heintzelman**

**Keith Hildwein**

**Ryan Horwitz**

**Jamie Lackner**

**Ari Lew**

**Kajsa Lundeen**

**Ariana Marin**

**Elizabeth Michaelson**

**Logan Murphy**

**Elliot Nichols**

**Sirawich Pipatprathanporn**

**Rose Popma**

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**Minors**

**Samantha Theuer**

**Heather Young**

**Gregory Cogut**

**Daniel Dubcek**

**Lydia Whitbeck**

**Renee Soulliere**

**Bethany Rookus**

**Tatiana Cuevas**

**Samantha Theuer**  
Kajsa Lundeen  
Stacy Kaneko  
Elena Folgueras  
Margaret Hammond  
Cassandra Jordan  
Danielle Ziaja

**Honors and Senior Theses**

**Zachary Brodkey**  
Using sulfur in apatite to determine the pre-degassed oxygen fugacity of the 1991 Mount Pinatubo Eruption, the 1982 El Chichón Eruption, and the 28 Ma Huerto Andesite of the San Juan Volcanic Field.

**Sally Ruan**  
A Study of Magnetite from the Raul Condestable Ore Deposit, Peru

**Samantha Theuer**  
Iron-rich Silicate Clay Synthesis & Paleoenvironmental Implications for Early Earth and Mars