



# Charlie Roots Honours Project Fund in Earth Sciences

*Charlie Roots. Geological mapping 1975 - Chuckachida Lake, BC (photo by Bob Hatcher)*

## We are grateful for your contributions to the Charlie Roots Honours Project Fund.

Your donation extends beyond a financial contribution and enables student recipients to explore their ideas, passions, and academic goals. We gratefully acknowledge significant matching funds from an estate donation and Carleton University.

Thanks to the support received from generous donors, Charlie's legacy of encouraging students to find and pursue their purpose can exist in perpetuity at Carleton. We are proud to share this report with you to demonstrate the impact of your support, showcase completed student projects spanning a wide range of Earth Sciences sub-disciplines, and provide an update on the Endowment Fund.

Today, the Endowment Fund has a value of more than \$550,000; the fund remains invested, and the interest generated by the endowment supports research grants that are awarded annually. B.Sc. Honours Earth Sciences students and their research supervisors submit their project proposals to a selection committee – successful applicants receive funds to help pay for the direct costs of their thesis research. We started fund raising in 2014, in 2019 the fund was endowed and named after Charlie Roots, and the first awards were made in the 2019-20 academic year to the Class of 2020.

## Celebrating Your Impact

21

Student research projects supported through the fund since 2020

9

Honours thesis projects currently underway

12

Projects completed in 2020 & 2022 (featured in this report)

### Dr. Charles Frederick Roots (1956-2016)



*Mount Logan 1992*

Over the course of his 30-year career, Charlie was a mentor and inspiration to dozens of young students and budding geoscientists who saw the beauty and curiosities of rocks, nature and science through his eyes.

Each year, the interest generated through this endowed fund will support research costs for a cohort of students in Charlie's memory – in perpetuity.

It is a great privilege to enhance the experiential learning opportunities of Earth Sciences students through the Charlie Roots Fund.



**Carleton**  
University

# Student projects supported by the Charlie Roots Honours Project Fund in Earth Sciences



**Ashley Abraham  
2020**

Pyroclastic flow deposit of the Ouarzazate Supergroup, Morocco

*Supervised by Dr. Brian Cousens*



**Quinn Emon  
2020**

Causes of rare earth element mobility in volcanic rocks: an example from Coromandel Peninsula, North Island, New Zealand

*Supervised by Dr. Brian Cousens*



**Mark Flesch  
2023**

Investigation of tungsten release and mobility in scheelite tailings through column experiments

*Supervised by Drs. Rich Amos & Hanika Rizo*



**Mackenzie Gracequist,  
2022**

Mineralogy of clay alteration associated with uranium mineralization, Patterson Lake Corridor, northern Saskatchewan

*Supervised by Dr. Hanika Rizo*



**Emily Holdsworth  
2020**

Structural history of the Robertson Lake shear zone and its relationship to the Cranberry Lake pluton, Puzzle Lake area, Grenville Province, Ontario

*Supervised by Drs. Sharon Carr & Michael Easton*



**Allison Howes  
2020**

Constraining the metamorphic history of the Saglek-Hebron Complex in Northern Labrador through Lu-Hf garnet geochronology

*Supervised by Dr. Hanika Rizo*

In the fourth year of their programs, Honours students carry out original research working directly with a faculty member, often in collaboration with an adjunct professor (<https://earthsci.carleton.ca/people>) or experts from geological surveys, museums, government research labs or industry. Starting in the summer or fall terms and concluding at the end of the winter term, they formulate a science question and testable hypotheses; design and carry out their research plan; synthesis and evaluate the data to draw their conclusions; write up their project as a thesis; and present a talk and poster presentation in a conference setting.

For more information about Charlie Roots, select the quick link on the Department of Earth Sciences homepage at <https://earthsci.carleton.ca/>

# Student projects supported by the Charlie Roots Honours Project Fund in Earth Sciences



**Marissa Livius  
2020**

A re-evaluation of a chasmosaurine parietal from Saskatchewan, previously attributed to *Chasmosaurus russelli*

*Supervised by Dr. Hillary Maddin*



**Lauren MacLellan  
2022**

The origin of sector-zoned garnets

*Supervised by Dr. Fred Gaidies*



**Rebecca Price  
2020**

Structural characterization of the Maberly shear zone separating the Sharbot Lake domain and the Frontenac terrane of the Grenville Province in the Perth Area

*Supervised by Drs. Sharon Carr & Michael Easton*



**Urgan Snider  
2022**

Ontogenetic variation of nuchal musculature size on the frill of the Ceratopsian *Centrosaurus*

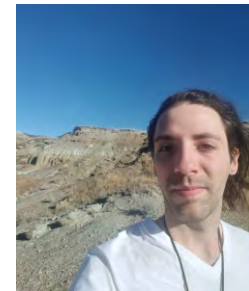
*Supervised by Drs. Jordan Mallon & Hillary Madden*



**Jacob Sullivan  
2022**

The geochemistry of Eocene-Oligocene mafic rocks along a transect across northeastern Nevada, USA

*Supervised by Dr. Brian Cousens*



**Trystan Warnock-Juteau  
2023**

Redescription of a juvenile Hadrosaurid skull from the Upper Cretaceous of Alberta using computed tomography

*Supervised by Drs. Jordan Mallon & Tim Patterson*

During the COVID-19 pandemic, only a few Charlie Roots Honours Project Fund awards were made because student research was deferred, or projects were based in theoretical research, local projects or data mining (i.e., rather than analytical lab work or traveling for field or lab work). During these years, the unspent annual interest from the endowment was recapitalized to help grow the fund. We are happy to report that in this current 2023-24 academic year, honours thesis research is back to normal with full access to field work and laboratories, including travel. Nine awards totaling \$20,600 have been made in support of nine deserving student projects that are currently underway.

Questions or comments? Please contact Sharon Carr ([Sharon.Carr@carleton.ca](mailto:Sharon.Carr@carleton.ca))  
<https://earthsci.carleton.ca/>