

Reducing Barriers to Equitable Access to Transformative Field Education via Microgrants

Lizzy Trower (Geological Sciences) on behalf of the GEOL BAJEDI Committee

1. Project Abstract

Field-based courses in the geosciences and other natural sciences fields can provide invaluable and transformational experiences for students. Although extra course fees are not charged for these courses, the hidden costs of acquiring necessary personal equipment for fieldwork can often represent a significant financial barrier and source of inequity for students. As one prong of an effort to eliminate this barrier, we (Trower and the GEOL BAJEDI Committee) have been developing a microgrant program to enable students enrolled in GEOL field courses to purchase necessary field equipment for personal use including hiking boots, waterproof jackets, backpacks, etc. Here, we request funding that will enable us to support and grow this program as we work to build a sustainable and long-term funding model.

2. Project Summary

Field courses form an integral and required part of the curriculum in the Department of Geological Sciences (GEOL): these courses offer capstone experiences in which students can practice real-world applications of concepts introduced in previous courses. Although these courses, and other field experiences (e.g., experiences related to research) can be, at their best, transformative and invaluable pathways for learning, growth, team building, and empowerment (P. J. Stokes et al., 2015), they can also be a significant source of inequity (Giles et al., 2020). Three of the most significant sources of inequity in both access to and experience in field courses are: (1) the high financial costs associated with personal field equipment necessary to create a safe and comfortable learning environment; (2) the lack of accessibility of some field sites, particularly for students with disabilities; and (3) the potential for unsafe and unwelcoming conditions at some off-campus field locations, the impact of which is most significant for BIPOC and LGBTQ students (Giles et al., 2020; John & Khan, 2018). The project proposed here focuses on overcoming the first challenge, but we acknowledge that the second and third issues are also deeply important and require distinct solutions (Anadu et al., 2020; Demery & Pipkin, 2021; A. Stokes et al., 2019).

Unlike many other programs at peer institutions, the Department of Geological Sciences at CU Boulder does not charge course fees for its field courses; the regular course fee for in-state students at US-based institutions in 2017 was \$3,850 (Lelleher, 2017). However, all field courses (including those in GEOL at CU Boulder) include hidden costs in the form of: (1) the cost of personal field gear, (2) the potential costs of lost wages, and (3) the potential costs of childcare (Abeyta et al., 2021). The latter two types of hidden costs are somewhat minimized for CU Boulder students due to GEOL's alternative field curriculum structure, which requires students to take one introductory field course and two advanced field modules. This is in contrast with the 4-week

with these hidden costs consistently request more support and information to know what they need (and how to afford it) rather than requesting that field course requirements be dropped.

Abeyta et al. (2021) estimated that the median investment in typical personal field equipment needed for a geoscience field course was \$478 in 2021 (25th percentile: \$262, 75th percentile: \$759, 95th percentile: \$1,528). This analysis included personal equipment including boots, rain gear, backpack, field notebook, writing implements, water bottle, sunscreen, etc., but did not include camping equipment that is sometimes needed (i.e., tent, sleeping bag, sleeping pad) since those items can more easily be borrowed and rented. However, we note that buying, rather than renting or borrowing, camping equipment can add significant cost. Abeyta et al. (2021) noted that, due to the “pink tax” effect, comparable women’s equipment costs more than men’s equipment (typical added cost of \$61 to \$182 in their analysis) and plus sized women’s clothing increased the cost even more (typical added cost of \$25 to \$63 in their analysis).

Starting in AY 2022/2023, we have been piloting a micro-

Beyond AY23/24, we intend to achieve a more sustainable long-term funding model by: (1) encouraging GEOL faculty to consider writing migrant support into NSF grants that fund field-based research; (2) working with the GEOL Advisory Board to solicit donations to specifically support this program; and (3) building connections and collaborations with other departments to seek external grant funding to support equitable participation in field courses and other field experiences across a broad suite of disciplines.

The hidden financial costs of personal field equipment for field courses particularly significant barrier to students from underprivileged backgrounds, a group that commonly intersects with students with underrepresented identities. This project will enable students from all backgrounds to obtain equitable opportunities to succeed and benefit from