Goldschmidt 2024 Abstract
https://doi.org/10.46247/gold2024.22114

Increasing equitable access to meaningful research experiences through undergraduate mineralogy and earth materials classes

EMILY H.G. COOPERDOCK[1], JUSTINE G. GRABIEC[2], ALEXIA ROJAS[1] AND AARON J. CELESTIAN[3]

[1]Brown University

[2]University of Southern California

[3]Natural History Museum of Los Angeles

Presenting Author: emily_cooperdock@brown.edu

Research experience is an important part of undergraduate training. Most often this is achieved through competitive summer internships (e.g., NSF REU or institutional fellowship programs), senior thesis classes, or work study. These common research experiences often require a portion (but not all) of a summer that could otherwise be spent earning wages; moving for a short-term opportunity; a time investment outside of regular class hours; and may come with a nominal stipend or cost tuition dollars to participate. This time and financial cost can exclude students who have caregiving duties, medical needs that require them not to leave their home-support network, or jobs to support themselves or their families, amongst other reasons. Not participating in meaningful research as an undergraduate can have long-term career impacts as research experiences are highly valued in graduate school admissions and STEM employment. In order to reduce the barriers to research experiences, we redesigned an existing, required course at the University of Southern California called “Minerals and Earth Systems”. This redesign integrated final research projects in which each undergraduate student conducted hands-on data collection of a novel dataset and summarized their findings in a final paper and presentation. The entire experience was conducted during regular semester hours, within the credit load of the class. Outcomes included an increased interest in mineralogy-related topics and a desire to pursue further research opportunities within the department. Here we offer a roadmap that re-envisions how core earth science courses can be modified to create meaningful research opportunities within class time. Such courses can help provide equitable access for students who have been historically excluded from participating in the existing undergraduate research infrastructure.