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Involving First-Year Geology Students in Research activities: A CURE Light project

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As a first encounter with geosciences, introductory courses play a critical role in shaping students' motivation, engagement, sense of belonging, and their ability to envision themselves as future geoscientists. These factors are crucial for student retention. This project, “Involving First-Year Students in Research Activities: A CURE Light Project,” aims to introduce first-year undergraduate geology students to authentic geoscientific research activities through a simplified version of Course-Based Undergraduate Research Experiences (CURE). In traditional CURE models, students independently identify research questions, collect data, and draw conclusions. This approach differs from conventional lab training, where educators design experiments and know the expected outcomes. While the incorporation of full-scale CURE can be challenging as they demand considerable time and effort from both students and educators, can be costly, and are often difficult to implement in existing courses, we aim to demonstrate that a lighter approach can yield significant pedagogical benefits. In teams of three, participating students engage in sample preparation, lab work, and data analysis, ultimately presenting their findings. This hands-on experience allows students to trace a rock sample through the geoscientific research process, enhancing their understanding of the subject's relevance and potentially igniting interest in scientific careers.

The project stems from the observation that a strong sense of belonging enhances motivation and engagement among first-year students. By working alongside technical and scientific staff, we seek to determine if hands-on research participation boosts students' perceived career prospects and strengthens their connection to the department. Our target group includes 35 first-year geology students enrolled in GEO1110, Earth Processes, in Spring 2025.

Our focus is on introducing students to diverse research tasks and the working life within geosciences, rather than extensive practical skills training. We collect qualitative and quantitative feedback through pre- and post-activity questionnaires to assess the impact of their research experiences on their sense of belonging, motivation, and interest in the field. Insights from this pilot project will guide the development of similar initiatives and contribute to the evolution of undergraduate geoscience education practices at the department.