

Project Title Mineral & Rock Identification Kits

Principal Applicant Gary Calderone, Residential Full-Time Faculty,
gary.calderone@gccaz.edu, 6238453654, Glendale

Name, title, college/district office of each team member who created the innovation.

The Geology Program at Glendale Community College including

- Jennifer Harman (Lab Tech),
- Wayne Johnson (Lab Coordinator & Adjunct Faculty),
- Steve Kadel (Residential Faculty),
- Karrie Wood (Residential Faculty) ,
- Pamela Nelson (Residential Faculty),
- Gary Calderone (Residential Faculty) &
- Deborah Roseke (Administrative Assistant).

Winning innovations should fall into one of the following categories. Select the category most strongly aligned to the project (maximum of one)

Resource Development

Winning innovations should meet one or more of the following criteria. When submitting your college's winner, please select the criteria that best apply to the innovation (select all that apply).

Quality.

Students and/or staff agree that the innovation increases quality in the course, program, office, or institution. Evidence of quality may include student ratings or letters of support from colleagues. Quality is difficult to measure, but the committees might want to wrestle with criteria that define quality in their colleagues.,

Efficiency.

There is evidence that the innovation contributes to a more efficient way of doing things. Student ratings, perceptions of outside consultants, and pre- and post-comparison of time involved are examples of evidence.,

Replication.

The innovation selected can be replicated at other institutions with a minimum of difficulty.,

Timeliness.

The innovation should be no more than five years old at the institution, but must have been around long enough to have been tested so that it meets most of the criteria.

Project Summary (maximum of 1,000 characters)

The transition to online delivery of geology lab courses resulted in a need to provide actual mineral and rock samples for student use.

- In short order, create student mineral & rock sets and tools for their identification for over 200 students taking geology lab courses; devise a system to safely manage the distribution and return of these kits for the Fall 2020 semester and beyond if needed.
- Quality: The GCC Geology Program was able to maintain its reputation for quality hands-on lab instruction during the pandemic.
- Efficiency & Replication: We digitized our Equipment Loan agreements providing an easy-to-use, paperless database, while minimizing contact risk during the pandemic.
- Timeliness: we did it in time to salvage not only the Summer & Fall semesters, but also the impending Spring semesters and beyond if need be.

What was accomplished? All of the above. Student success in an online lab course was enhanced with actual rather than virtual mineral & rocks.

Project Description (maximum of 1,000 words)

When the COVID-19 pandemic shutdown the campus last Spring Break, our mid-term GLG103 rocks exam was laid out in PS174 awaiting the students' return. We managed to video each specimen and successfully created a Canvas proxy for not only the live-specimen midterm, but also the exams needed for final exams. But we counted ourselves and our students lucky in that they at least learned the minerals and rocks with live specimens prior to Spring Break. For the summer, we had enough rock and mineral sets between GCCN and Main to accommodate the 46 students taking summer labs. Steve Kadel set up curbside delivery of these live sample sets and Karrie Wood took up the challenge to create the videos and Canvas quizzes associated with these samples.

As the pandemic worsened, we were faced with the challenge of how to accommodate the 200+ students that we might have in the Fall. Whereas many Geology programs teach Geology labs online using only photos, we have always maintained that mineral & rock identification is best accomplished using all the senses (even taste where hygiene is not a concern). But with fiscal deadlines approaching and our campus shutdown, how could we possibly make that quantity of high-quality sample sets? It seemed at first, impossible. Wayne Johnson (our Laboratory Specialist Supervisor & Adjunct Faculty) managed to find appropriate sample boxes but would not be able to order them until this Fiscal year (July 8) with delivery by July 22; leaving only 30 days to create the kits themselves.

Step to the plate, our chief lab tech at GCC Main, Jennifer Harman. She said that she could do it! Working from home all of those 30 long days & nights she did it! Two pick-up truck loads of empty sample boxes, 8906 samples chosen, trimmed for compartment sizes, labeled with number hole-punch dots glued to their surface, put into boxes with compartment labels. The sets were outfitted with sample testing kits including glass plates, streak plates, magnets, copper wire, hand lenses, and nails. Our supply of minerals & rocks, although substantial, was augmented by Steve Kadel as needed along the way. The sets were organized by labs so that students of one instructor had the matching samples for that instructor's kit for live demonstrations on Zoom.

Curbside delivery was once again handled by Steve Kadel with Jennifer providing the carts appropriate for each instructor's students. Gary Calderone customized & digitized the standard Physical Sciences Equipment Agreement via Dynamic Forms issued to the students in advance via Canvas; and remotely coordinated the delivery of late submissions with Jennifer in real time to help minimize paper/pen/ID/photocopying, etc. disinfection issues during the curbside pick-ups.

Over 200 sets were issued to students for use during the semesters. In addition to exposing students to actual mineral & rock samples, instructors could direct students to choose certain samples via Zoom sessions to help ""calibrate their eyes"" to subtle characteristics of mineral & rock identification in real time.

Over 80% of students indicated that the sets were excellent or above average and used quite frequently in student evaluation data collected at the end of the semester. Pam Nelson & Jennifer Harman are already in the process of completing new kits adding fossils for GLG104, Historical Geology.