**Affordable Learning Georgia Affordable Materials Grants  
Continuous Improvement Grants Final Report**

# General Information

Date: 05/15/2023

Grant Round: 21

Grant Number: M189

Institution Name: Dalton State College

Team Members:

Dr. Christopher Wozny, Associate Professor of Chemistry and Physics, Physical Science, cwozny@daltonstate.edu

Dr. Rebecca Brosky, Assistant Professor of Chemistry, Physical Science, rbrosky@daltonstate.edu

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Project Lead: Dr. Christopher Wozny

Course Name(s) and Course Numbers: General Chemistry I and II, CHEM 1211k/1212k

Final Semester of Project: Spring 2023

***If applicable to your project:***

Average Number of Students Per Course Section: 23 for CHEM 1211k; 20 for CHEM 1212k

Number of Course Sections Affected by Implementation of Revised Resources: 14

Total Number of Students Affected by Implementation of Revised Resources: 310

# Project Narrative

The purpose of this project was to create laboratory manuals for the Principles of Chemistry course sequence, CHEM 1211k and CHEM 1212k, in an electronic format with on-line accessibility.

Standard practice has been for the chemistry faculty at Dalton State College to meet at the start of each semester to choose a sequence of experiments for each course. The original works were a piecemeal collection of Word documents forwarded to faculty by the Laboratory Coordinator during the first week of the semester. The experiments lacked consistency in style, format, and student expectations.

Also, instead of a complete lab manual ready for use on the first day of lab, faculty would typically print copies of the experiment before class time, meaning that students were unable to prepare for the laboratory experience in advance. We now have a SharePoint folder accessible to all chemistry faculty with a library of experiments.

The timeline in the proposal was to meet weekly during the Spring 2022 semester and implement the new manual during the Fall 2022 semester. Although we began meeting then, the timeline shifted to full implementation for the Spring 2023 semester.

The team immediately encountered challenges to the process. Scheduling times to meet, of course, is always an issue. But we also were hampered by differences in style. One team member was very meticulous with respect to the accuracy of details. At the same time, this person also has a penchant for questioning fundamental assumptions. While these discussions were helpful in the long run, it also meant that we would spend hours on one or two topics without making substantive progress on the revision of the actual experiments.

There were also notable differences in editing style. One team member preferred annotations for further discussion. Another team member preferred to make edits to the text immediately. We finally discovered a method that was satisfactory for both styles, but it took some time to reach that compromise.

A third challenge was the adoption process. The revised experiments were presented to the chemistry faculty at a department meeting a week before the first day of the Fall 2023 semester. What should have been a simple process turned into a much longer discussion that mirrored the challenges we encountered as a revision team.

Everyone agreed with the benefits of revising the laboratory curriculum, but unforeseen issues arose. For example, what level of detail should be included in the laboratory instructions? Should students be ‘told what to do’, or be expected to decide on parts of the procedure for themselves? Some faculty were hesitant to include new experiments in the curriculum. The question of the alignment of labs and classroom instruction was also discussed at length.

Even with these challenges, there still have been positive outcomes from the process. Until this project, no one took responsibility for the general chemistry laboratory experience. Now, we as a faculty are now discussing the philosophy, goals, and implementation of the laboratory, recognizing the significance of the general chemistry laboratory within the Chemistry Program. Using laboratory-specific student evaluations will also be valuable as the curriculum continues to evolve in response to student needs.

The project also occurred at an opportune time for the Chemistry Program at Dalton State College. One of us was recently appointed the Chemistry Program Coordinator, so the discussion of the general chemistry laboratory curriculum has dovetailed nicely with larger discussions of our Program goals and how we assess them.

# Materials Description

The current revision includes eleven experiments for the CHEM 1211k course and twelve experiments for the CHEM 1212k course, shared under the Attribution 4.0 License. (The first experiment for each class is lab check-in and safety, which doesn’t employ this format.) All experiments have a consistent structure and follow USG guidelines for accessibility. Each experiment includes a Materials and Methods section that includes safety and hazard information for the chemical compounds encountered in the activity.

# Materials Links

In addition to the SharePoint site, the experiments can also be found at [www.chemistry.exploring-physical-science.site](http://www.chemistry.exploring-physical-science.site), which is a domain owned and maintained by one of the team members.

# Future Plans

At the time of this report, we have made significant progress, but we have not yet reached the primary purpose of the project: to produce two coherent and complete lab manuals for the CHEM 1211k and CHEM 1212k courses, ready for student use before the first day of classes. We hope to meet that goal for the Fall 2023 semester.

Having three of the five full-time chemistry instructors teaching these courses on the revision team was helpful, but implementing changes to the curriculum has proven much slower than we imagined. Though the grant period has ended, the process of revision and implementation will continue until its original goals have been met, both for the sake of the Chemistry Program at Dalton State College and the students we serve.