

Round	14
Grant #	M90
Applicant Name	Donald Wayne Suggs
Applicant Position	Senior Academic Professional
Applicant Institution	University of Georgia
Applicant Email Address	dwsuggs@uga.edu
Other Team Members	N/A
Type of Project	Develop Activities for classroom use
Course Number(s) and Title(s)	CHEM 2300 Quantitative Analysis
Final Semester of the Project	Summer 2020
Proposed Grant Funding Amount:	\$2,800.00
Currently-Existing Resource(s) to be Revised / Ancillaries Created	Quantitative Chemical Analysis by Daniel Harris
Project Description	<p>It is desired to develop classroom based activities for several topics covered in this course with the eventual goal of writing our own in house textbook or course work.</p> <p>Two activities will be developed for this course. The first will be in the area of volumetric analysis, specifically acid/base and complexometric titrations. Basic volumetric techniques are the underpinning of many classical quantitative techniques, and they include the analysis of beverages (fruit juices, wine, beer) or analysis household cleaning products (detergents and bleach). An conceptual understanding of the equilibrium issues in these titrations is important to applications in modern instrumental techniques. The second activity will involve techniques in analytical separations (mixture analysis, chromatography). The importance of this technique cannot be underestimated as it is fairly ubiquitous in analytical methods such as drug screens and environmental waste analysis.</p> <p>The class is taught in an active learning/flipped mode in which the students come prepared with basic concepts from assigned readings. The reading assignments will be built as part of the activity. The activities themselves will be based on concept building using the interpretation of real data (where possible). Activity questions will build on one another to fully develop the ideas behind the method of analysis being</p>

	<p>examined.</p> <p>This course will hopefully be able to occupy the new scale-up classroom being remodeled in the Chemistry building. Not only will students have access to a group of peers for the activity, but they will (hopefully) have access to programs like EXCEL and/or MATLab for calculations and data rendering.</p> <p>The goal is to have a good base of activities and supporting text such that a complete in house textbook can be written eliminating the need for a print copy textbook. Content videos will also be made to provide better background support for each topic. It is hoped to apply for a full grant to finish development of the text.</p>
Timeline and Personnel	<p>Summer 2019 Develop the activity for acid/base titrations. Dr. Suggs will be writing the activity with input from other analytical faculty.</p> <p>Fall 2019 Develop the activity for complexometric titrations. Dr. Suggs will be writing the activity with input from other analytical faculty.</p> <p>Spring 2020 Develop the activity for chemical separations. Dr. Suggs will be writing the activity with input from other analytical faculty.</p> <p>Summer 2020 All three activities will become a part of the CHEM 2300 course taught this semester. Each will be accessed.</p>
Budget	<p>\$2,800 is requested \$2,000 for summer support for Dr. Suggs. \$800 will be used software or materials needed to complete the activities.</p>
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