



Affordable Materials Grants, Round 20:
Continuous Improvement Grants
(Fall 2021-Fall 2022)
Proposal Form and Narrative

Notes

- The proposal form and narrative .docx file is for offline drafting and for our review processes. Submitters must use the online Google Form for proposal submission, including uploading this document.
- The only way to submit the official proposal is through the Google Form. The link to the online application is on the [Round 20 RFP Page](#).
- The italic text provided below is meant for clarifications and can be deleted.

The Round 20 Kickoff will include an asynchronous training module, required for all team members to complete, followed by the synchronous Kickoff Meeting on December 10, 2021 from 1pm-4pm. At least two team members from each awarded team (unless the award is for one individual) are required to attend the synchronous Kickoff Meeting.

Applicant and Team Information

*The **applicant** is the proposed Project Lead for the grant project. The **submitter** is the person submitting the application (which may be a Grants Officer or Administrator). The submitter will often be the applicant—if so, just leave the submitter blank.*

Requested information	Answer
Institution	Georgia Southern University (Statesboro)
Applicant name	Beulah Narendrapurapu
Applicant email	bnarendrapurapu@georgiasouthern.edu
Applicant position/title	Senior Lecturer
Submitter name	
Submitter email	
Submitter position/title	

Please provide the first/last names and email addresses of all team members within the proposed project. Include the applicant (Project Lead) in this list. Do not include prefixes or suffixes such as Ms., Dr., Ph.D., etc.

Team member	Name	Email address
Team member 1	Beulah Narendrapurapu	bnarendrapurapu@georgiasouthern.edu
Team member 2	Dawn Cannon-Rech	dcannonrech@georgiasouthern.edu
Team member 3	Jeffrey Mortimore	jmortimore@georgiasouthern.edu
Team member 4	Deborah Walker	dwalker@georgiasouthern.edu
Team member 5		

If you have any more team members to add, please enter their names and email addresses in the text box below.

Project Information

Requested information	Answer
Type of Project	<ul style="list-style-type: none"> Creation of ancillaries for existing OER courses
Requested Amount of Funding <i>\$10,000 maximum total award per grant</i>	\$8400
Course Titles and Course Numbers	Comprehensive General Chemistry (CHEM 1310)
Final Semester of Project	<ul style="list-style-type: none"> Fall 2022
Currently Existing Resource(s) to be Revised/Ancillaries Created <i>Please provide a title and web address (URL) to each of the currently existing resources that you are revising, creating new ancillary materials for, or replacing. If replacing, please include a title and web address (URL) to the new OER as well.</i>	Chemistry Textbook (Libguide for Comprehensive General Chemistry- CHEM1310- course) https://oer.galileo.usg.edu/chemistry-textbooks/4/

Project Goals

In at least one paragraph, describe your project's goals and what materials will be created or revised.

During Summer 2019 and Fall 2019 semesters, as part of the ALG-Textbook Transformation Grant Round 14, our team has curated materials from OpenStax and other OER Chemistry textbooks and created a no-cost Libguide Textbook for Comprehensive General Chemistry (CHEM 1310) course—an introductory chemistry course for Engineering majors. The Libguide Textbook includes videos, simulations and end-of-the-chapter problem sets to enhance student interaction with the textbook. The ALG project has led to an estimated \$90,480 annual student savings and provided major-related content to students enrolled in the course. The Libguide is currently being used as the chemistry textbook in all CHEM 1310 sections at Georgia Southern University at both Statesboro and Armstrong campuses. More than 700 students per academic year are benefitting from the cost-savings from both campuses. Our Libguide has been featured by SpringShare, the company that provides the Libguide platform. During the COVID pandemic, when teaching pivoted online, the Libguide proved to be a valuable resource, providing students curated videos that can be used for reviewing the material. The videos embedded in the Libguide also facilitate various modes of instruction and learning, such as *Flipped Classroom*.

The goal of our current project is to create self-assessment multiple choice questions as ancillary materials for all chapters in the Libguide Textbook. The self-assessments offer students an opportunity to test themselves on content knowledge and mastery, and gauge test-readiness. We also anticipate the self-assessment tests will help reduce test anxiety in students. Students often want to practice previous tests to prepare for cumulative exams, such as the final exam; however, in some cases in classes where instructors do not share test forms to protect test integrity, students do not have this privilege. The self-assessments will bridge this gap, making learning and test preparation equitable.

In this project, we will also assess how students interact with the OER self-assessments, and, if the self-assessments increase student success in the course. After the project is completed, printed-and-bound copies of self-assessments will be made available to the Library Reserves at both campuses of our University. On the Statesboro campus alone, the project will impact 624 students enrolled in CHEM 1310 courses per academic year. It will also make our existing OER materials comparable with paid materials provided by textbook publishers.

Action Plan

Describe the tasks needed to complete the project in as much detail as possible. If this application has more than one team member, include the major roles for each person and which tasks this role is assigned. Estimate the amount of time (e.g. number of hours) each task will take. Include plans for open licensing and plans for making your materials accessible. Indicate if you are using other platforms in addition to the repository to host your created materials.

Creating Ancillary materials: There are 13 chapters in the CHEM 1310 Libguide Textbook. First, we will create the questions for the self-assessments for each of chapter on a word document. After the multiple-choice questions are reviewed and finalized, the self-assessments will be loaded into the Libguide using HTML code and Libguide Tools. MATHML code will be used to format any chemical or mathematical equations involved in the questions. Self-assessments will be formatted so that feedback is provided to students when they complete a self-assessment. The self-assessments will be open access on the Libguide, so that anyone can access them and use them.

Assessment study: For assessment purpose, the self-assessment pages (which are open-access) will be integrated into the LMS to assess how CHEM 1310 students use the ancillary materials. This will enable us to monitor individual students' progress on the self-assessments throughout the semester (*It should be noted that the self-assessments are for open access. But they will be additionally embedded into LMS for assessment purposes*). We will design survey questions that study how the self-assessment materials will impact student success and test anxiety and how students interact with the materials. Students' progress on self-assessments and their exam scores will be analyzed. A survey will be administered to students in the Spring 2022, Summer 2022 and Fall 2022 semesters towards the end of the semester. Spring 2022 data will serve as pre-implementation data, Summer 2022 and Fall 2022 data will serve as the post-implementation data.

Data, such as test scores and survey responses, from pre- and post-implementation semesters will be analyzed to answer the assessment questions. The results from the assessment will be shared with the OER communities and teaching communities at conferences. The OER design, any results or conclusions will be submitted for publications in appropriate journals. The self-assessment questions will be printed, and 20 bound copies will be provided each campus Library (Statesboro and Armstrong Campus), so that students who want to have the self-assessments in printed format can borrow them from the library.

The PI is also the coordinator of CHEM 1310 course and will be responsible for maintaining/ updating the ancillary materials. The PI will also explore creative avenues to expand the study on self-assessments and continue to collect data in future semesters beyond the timeline of the project.

Responsibilities of Team Members

Our team members and two student workers who will be hired for the project will serve the project goals in various unique capabilities. The responsibilities of each team member are listed below.

Primary Investigator (Beulah Narendrapurapu):

(80 hours): The PI will design thirteen self-assessments for the thirteen chapters in the Libguide textbook. Each self-assessment will contain 20 multiple choice questions. Questions will be

designed with plausible distractors to evaluate in-depth understanding of concepts and emphasize higher level thinking, providing students with an opportunity to correct any misconceptions during exam preparation. This task includes creating equations/tables as needed for the assessment questions and/or gathering any open-source graphics needed.

(6 hours): The PI will meet with the Library Liaison's to discuss the formatting of the self-assessments in the Libguide and will learn about the Libguide Tools and best ways to implement the self-assessments.

(100 hours): The PI will recruit an undergraduate/graduate student (Student-1) to assist with loading the self-assessments into the Libguide. Another student (Student#2) will be hired to assist with the assessment portion of the project, such as, creating survey questions on online platforms, printing consent forms, data collection, and analysis. The PI will train Student-1 on how to use the Libguide tools, how to write HTML and MATML and comply with accessibility requirements. The student will also be trained on updating the references page to acknowledge any open-source graphics. PI will meet with undergraduate student assistants for training and provide guidance throughout the project.

(12 hours) After the self-assessments are loaded into the Libguide, PI will review the formatting and test all self-assessment questions and answers.

Apart from the active hours in creating and reviewing ancillary materials and training students, PI will be actively involved in communicating with assessment personnel to develop assessment instrument and surveys. PI will also be involved in data analysis as well.

Undergraduate/graduate students:

Two undergraduate/graduate students will be hired for the project.

Student#1 (200 hours): During Spring 2022, an undergraduate or graduate student will be hired to transfer the self-assessments to Libguides. Student will use HTML code, MATHML code and Libguide tools to format the self-assessments. It is estimated that the student will need 200 hours, including learning time for Libguide Tools and hours for programming the self-assessments in Libguides.

Student#2 (200 hours): Another student assistant will be hired to assist with the assessment portion of the study. The student will be responsible for creating online surveys, data collection, data de-identification, data analysis and summarizing data in graphs/tables for presentation.

Assessment Personnel (Deborah Walker):

Deborah Walker is the assessment personnel for the project and will be involved in developing the assessment instrument to measure how the ancillary materials impact student success, test

anxiety and how students interact with the OER ancillary materials. The assessment personnel will be involved in the IRB submission and will provide guidance on data analysis.

Library Liaisons (Dawn Cannon-Rech and Jeffrey Mortimore):

The Library Liaisons will be involved in advising the PI on Libguide formatting, Libguide tools to create self-assessments and how to integrate them with the LMS for assessment. The library liaisons will be involved in advising on best ways to program the self-assessments, advising on any accessibility issues that arise, and will report web-analytics for the Libguide pages. At the end of the project, the Liaisons will print the self-assessment questions and provide bound copies to the Statesboro and Armstrong campus Library reserves.

Timeline

Provide a project timeline aligned with the action plan above. Include major milestones and deadlines, keeping in mind your selected Final Semester.

Spring 2022 semester

Jan 2022

- Create oself-Assessment questions for 13 chapters.
- Design instrument for assessment study and develop survey questions.
- Advertise and hire two student assistants.
- Meet with Library Liaisons to learn about Libguide Tools.

Feb 2022

- Train Student-1 to write HTML code and MathML codes and testing code.
- Student-1 create self-assessments on Libguide for Chapters 1,2 3, and 4.
- Student-2 will create online survey questionnaires will be created (say in Qualtrix).
- Submit an IRB for collecting student data.

March 2022

- Student-1 creates self-assessments on Libguide for Chapters 5, 6, 7, 8 and 9.

April 2022

- Student-1 creates self-assessments on Libguide for Chapters 10, 11, 12 and 13.
- PI Reviews all the self-assessments created on the Libguide.
- Collect student data towards the end the semester (pre-implementation data).

May 2022

- *Load the ancillary materials into Summer 2022 Folio course and create items for Folio gradebook to track student progress on self-assessments. This is done for assessment purpose.*

May – July 2022

- *Implement the self-assessments in Summer 2022 course.*
- *Analyze data collected in previous semester (Fall 2022 semester).*
- *Collect data from Summer 2022 course for assessment.*
- *Load the ancillary materials into Fall 2022 Folio course and create items for Folio gradebook to track student progress on self-assessments. This is done for assessment purpose.*

August - November 2022

- *Implement the self-assessments in Fall 2022 course.*
- *Analyze data from previous semester (Summer 2022 semester).*
- *Collect data from Fall 2022 course for assessment.*

December 2022

- *Analyze pre-implementation and post-implementation data and create reports.*

Budget

Please enter your project's budget below. Include personnel and projected expenses, keeping in mind that this grant funds the estimated time in your Action Plan. The maximum amounts for the award are as follows:

- *\$2,000 maximum per team member for salary, course release, travel, etc.*
- *Additional project expenses allowed, but must be adequately justified in this section*
- *\$10,000 maximum total award per grant*

PI (salary): \$ 2000

The money will be paid as salary for developing self-assessment questions, training graduate/undergraduate assistants and time spent in leading various aspects of the project.

Student-1 (Salary): \$2000 (10\$ per hr x 200 hr)

The money will be paid as salary for student for time spent receive training on HTML/MATML/Libguide tools and for creating the self-assessments in the Libguide.

Student-2 (Salary): \$2000 (10\$ per hr x 200 hr)

The money will be paid as salary for student for assisting with assessment portion of the study during Spring 2022, Summer 2022 and Fall 2022 semesters.

Travel (\$1200): *Our work will be presented at two conferences. We ask for the travel budget to cover the conference registration costs and travel costs for the five team members (including students who assisted with the project). For two conferences we estimate 240\$ cost per team member for registration and travel.*

Supplies (\$1200): *The self-assessment tests will also serve as materials to prepare for Final exams. Students often purchase materials such as ACS guide to prepare for their Finals. Our self-assessment materials will serve as no-cost alternatives and will be made available in printed form as-well for students who prefer to have printed materials. The self-assessments for all chapters will be printed and bound, and will be made available in the Library reserve. Since, 384 students register into the CHEM 1310 course each Fall, we estimate that 20 copies of the printed and bound self-assessment copies will be needed for each Library. To cover costs for printing and binding CHEM 1310 self-assessment copies, we request funds for the supplies. The costs will also cover printing materials needed for the assessment portion of study (such as informed consents).*

Creative Commons Terms

I understand that any new materials or revisions created with Affordable Learning Georgia funding will, by default, be made available to the public under a Creative Commons Attribution License (CC-BY), with exceptions for modifications of pre-existing resources with a more restrictive license.

Accessibility Terms

I understand that any new materials or revisions created with Affordable Learning Georgia funding must be developed in compliance with the specific accessibility standards defined in the Request for Proposals.

Letter of Support

The Department Chair from the corresponding project, or the Department Chair's direct report such as the Dean or Provost, must provide a signed Letter of Support for the project. This letter should acknowledge the following:

- *The department will provide support for fund disbursement in correspondence with the Grants/Business Office.*
- *The department approves of the work on the proposal by the applicant(s).*
- *The department acknowledges the sustainability of these affordable resources after the grant work is complete.*

In the case of multi-institutional affiliations, all participants' institutions must provide a letter of support.

Please provide the name and title of the department chair (or other administrator) who provided you with the Letter of Support.

Will Lynch

Chair, Department of Chemistry and Biochemistry.

Grants or Business Office Acknowledgment Form

Institutional Grants/Business Offices will be responsible for fund disbursement, often in correspondence with the Department Chair, including expense and travel reimbursement. All applicants will need to provide a signed Acknowledgement Form, the template for which is linked on the RFP page, stating that the Grants/Business Office knows about the applicant's intent to apply for an Affordable Materials Grant. Either the Department Chair or the Project Lead can work with the Grants/Business Office to get this signed form.

In the case of multi-institutional affiliations, all participants' institutions must provide this form.

Please provide the name and title of the grants or business office representative who provided you with the acknowledgement form.

Laura Regassa

Assistant Provost for Research