

**Affordable Learning Georgia Textbook Transformation Grants  
Round 2  
Summer 2015, Fall 2015, Spring 2016  
Proposal Form and Narrative**

<b>Institution Name(s)</b>	University of North Georgia- Dahlonega and Oconee campuses				
<b>Team Members</b> (Name, Title, Department, Institutions if different, and email address for each)	Jim Konzelman, Professor of Chemistry, UNG-Oconee, <a href="mailto:Jim.Konzelman@ung.edu">Jim.Konzelman@ung.edu</a> Greta Giles, Assistant Professor of Chemistry, UNG-Dahlonega, <a href="mailto:Greta.Giles@ung.edu">Greta.Giles@ung.edu</a>				
<b>Sponsor, Title, Department, Institution</b>	John Leyba, Department of Chemistry and Biochemistry Chairman, University of North Georgia				
<b>Course Names, Course Numbers and Semesters Offered</b> (Summer 2015, Fall 2015, or Spring 2016)	Principles of Chemistry I, CHEM 1211, offered all three semesters Principles of Chemistry II, CHEM 1212, offered all three semesters				
<b>Average Number of Students Per Course Section</b>	40	<b>Number of Course Sections Affected by Implementation in Academic Year 2016</b>	15	<b>Total Number of Students Affected by Implementation in Academic Year 2016</b>	600
<b>Award Category (pick one)</b>	<input checked="" type="checkbox"/> No-Cost-to-Students Learning Materials <input type="checkbox"/> OpenStax Textbooks <input type="checkbox"/> Course Pack Pilots <input type="checkbox"/> Transformations-at-Scale				
<b>List the original course materials for students</b>	Chemistry Plus Mastering Chemistry with eText -- Access Card Package (6th Edition) Required		[Cost] \$279.60 + tax / student		

(including title, whether optional or required, & cost for each item)		<b>Total Cost:</b> <b>\$279.60 + tax/ student</b>	
Plan for Hosting Materials	<input type="checkbox"/> <a href="#">OpenStax CNX</a> <input type="checkbox"/> D2L <input type="checkbox"/> <a href="#">LibGuides</a> <input checked="" type="checkbox"/> Other __Open Access website at UNG		
Projected Per Student Cost	<b>\$0.00</b>	Projected Per Student Savings (%)	\$279.60 + tax (100%)

## 1. PROJECT GOALS

- Reduce student expenses related to textbooks while enhancing the learning environment.
- Provide a free resource for college students taking chemistry for science majors that is superior to a textbook.
- Develop materials that will take advantage of digital media and be dynamic in nature, including video presentations, demonstrations, examples, quizzes, homework, text and additional resources.
- Develop content that is geared toward different learning styles.
- Provide a resource that will be organized into content areas to allow for flexible delivery sequences as desired by various instructors.
- Provide content geared toward the specific areas of study for all science majors, not just chemists.

### 1.1 STATEMENT OF TRANSFORMATION

Often times, students need additional help to master the abstract nature of chemistry, which is evident in the traditionally high DWF rates for this sequence. The textbook is an essential resource that can lead to student success if utilized properly, but can be difficult for some to decipher on their own. Students are known to turn to the internet for the additional help they need, spending valuable time searching, and watching videos on sites such as YouTube and Khan Academy.<sup>1</sup> The instructor has no control or input into the information presented to the students in this open forum, which often times is incomplete, inaccurate, or even wrong, causing more harm than good. In addition, the students can spend too much time searching instead of studying, and many actually think they are studying when they are not. A more efficient system is needed.<sup>2</sup>

Our transformation will begin in the spring of 2015 with the use of Open Stax materials in lieu of a physical textbook. During this time we will focus on developing our own digital media to compile on a free access website that goes beyond where a textbook ends. With comprehensive content, video, and assessments in one location, the students will no longer need to search the web to find the resources they need, and the instructors will have control over the content, which can be amended as needed. The content will replace the textbook for the two semester chemistry sequence for science majors. The website will be developed during the spring and summer of 2015, and implemented in the fall of 2015 for CHEM 1211, and for CHEM 1212 the materials developed in fall 2015 and launched in the spring of 2016, with continual updates and improvements. The materials will be available for adoption by all instructors, and for use by all students at UNG.

The stakeholders that will be affected are predominately freshman and sophomore science majors at both the Oconee and Dahlonega campuses of UNG. In addition, some non-traditional students returning to college seeking a career change will likely be enrolled.

Providing a website for the instructors to compile all of their teaching resources will greatly enhance the general chemistry sequence for all involved. The students will have 24/7 unlimited access to video lectures that can be watched and referred to as many times as needed, instead of relying solely on lecture notes. Students will no longer need to search the internet for

information, they can request additional information be placed on the website. Thus, a more efficient learning environment will be created, and should increase student success.

Unlike using a textbook, the instructors will have total control over the content, which can be continually improved and expanded upon, creating a customizable course, which can be delivered in varying order according to instructor preference. The website can include interactive features that a textbook lacks, such as video demonstrations, recorded lectures, and instantaneous feedback on homework and quizzes. The website can compile frequently asked questions to monitor areas where students have difficulty, which can then provide valuable feedback to the instructors, as well as answers to the students. The instructors' answers can remain posted indefinitely, creating an increasingly comprehensive and searchable resource. The website will become an essential resource that will free up class time and utilize student and instructor time more efficiently, while providing a more dynamic learning environment that should result in greater student retention and success.

## 1.2 TRANSFORMATION ACTION PLAN

The course materials for CHEM 1211 will be identified and developed during the spring and summer of 2015. Those items for CHEM 1212 will be identified and developed during the fall 2015.

The website will be populated with these materials with the assistance of an experienced web programmer in time to implement its use in the Fall 2015 for CHEM 1211, and Spring 2016 for CHEM 1212.

Drs. Giles and Konzelman, as the lead chemistry educators, will provide content and organizational structure, including course syllabi. Each topic will include slide show presentations with added audio, outlines, study guides, sequentially solved examples with audio explanations, formative assessments with instantaneous feedback, summative assessment with instantaneous feedback, video demonstrations, links to useful resources and additional information as deemed appropriate.

Working with direction from the instructors, the subcontracted web designer will be responsible for inserting the content on, and maintaining the website, and ensuring it will function on computers and portable devices.

All materials will be freely accessible for all instructors at UNG, and on the internet starting Fall semester 2015, with open access provided through Merlot.org.

## 1.3 QUANTITATIVE AND QUALITATIVE MEASURES

**Quantitative Measures:** *DWF rates for the past five years will be compared to those for the 8 sections employed for this transformation. Ideally, one would hope for a lower number of DWFs that is statistically significant, but any result that does not increase the DWF rate will be considered an improvement based upon cost savings to the students. It may be necessary to collect data beyond the one year introductory phase.*

Students will be given pre /post- quizzes on selected content to gauge their grasp of the material before and after accessing the website, and prior to covering the material in class. This data will be used to measure the effectiveness of the website to foster independent learning.

**Qualitative Measures:**

Student satisfaction with the transformation is an important factor that will be measured with opinion surveys. Data will be collected that will allow for improvement of the website, and a measure of value as compared to a traditional text.

**1.4 TIMELINE**

- 2015** May- Aug Instructors select and develop course content for CHEM 1211  
 June-Aug Instructors work with web designer to add CHEM 1211 content to website  
 Aug – Dec. Implement use of website in CHEM 1211, administer pre-post tests for each section, develop content for CHEM 1212, instructors work with web designer on CHEM 1212 content  
 Dec Compile data, and submit mid-term report  
 Dec Administer student opinion survey for CHEM 1211
- 2016** Jan-May Implement use of website in CHEM 1212, administer pre-post tests for each section  
 May Administer student opinion survey for CHEM 1212, compile data and submit final report

**1.5 BUDGET**

<i>Item</i>	<i>Justification</i>	<i>Amount</i>
<i>Release time for Dr. Greta Giles</i>	<i>Dr. Giles will need time to develop web content, assessments, attend meetings, and coordinate with the web designer</i>	<i>\$3000</i>
<i>Release time for Dr. Jim Konzelman</i>	<i>Dr. Konzelman will need time to develop web content, assessments, attend meetings, and coordinate with the web designer</i>	<i>\$3000</i>
<i>Web designer/programmer</i>	<i>Hire an experienced web designer to facilitate posting of content</i>	<i>\$3000</i>

<i>Travel for Drs. Giles and Konzelman</i>	<i>USG grant kick-off training/implementation meeting</i>	<i>\$800</i>
<i>Computer Hardware/software</i>	<i>Wacom USB tablet and software for creating hand-drawn digital input, one each for Drs. Konzelman and Giles</i>	<i>\$1000</i>
	<i>Total</i>	<i>\$10,800</i>

#### 1.6 SUSTAINABILITY PLAN

The initial website content is only the foundation of this project. Once established, the instructors will be able to maintain and update the content as needed. Ideally, there will be no reason to ever go back to using a textbook. As student use of the website proves successful, adoption of its use will increase and additional faculty will join in the process of maintaining and improving the content and effectiveness of the site. With some planning, the site can become useful in perpetuity, as younger faculty take over leadership of this project, with the only cost being the investment of time.

#### 1.7 REFERENCES & ATTACHMENTS

1. Kay, Robin H. "Exploring the Use of Video Podcasts in Education: A Comprehensive Review of the Literature." *Computers in Human Behavior* 28.3 (2012): 820-31.
2. Allen, Nicole. "The Future of Digital Textbooks." *Public Purpose* 1 Dec. 2013: n. pag. [Http://www.aascu.org/](http://www.aascu.org/). [Http://www.aascu.org/](http://www.aascu.org/), 1 Dec. 2013. Web. 12 Nov. 2014.

**PROPOSAL SUBMISSION: ALL PROPOSAL DOCUMENTS, REFERENCES, AND ATTACHMENTS MUST BE SUBMITTED IN A SINGLE EMAIL TO [ALG@GATECH.EDU](mailto:ALG@GATECH.EDU).**

**DEADLINE FOR CATEGORIES 1-3: 5:00 PM, NOVEMBER 30, 2014**

**DEADLINE FOR CATEGORY 4: 5:00 PM, DECEMBER 8, 2014**



**UNG** UNIVERSITY of  
NORTH GEORGIA™  
COLLEGE OF SCIENCE & MATHEMATICS

Department of Chemistry & Biochemistry

November 18, 2014

To Whom It May Concern:

It is with great pleasure that I write this letter in support Dr. Jim Konzelman, Professor of Chemistry, and Dr. Greta Giles, Assistant Professor of Biochemistry. These two faculty members are teaming up to develop learning materials that will replace the textbooks that are currently being used. The newly developed learning materials will be supplied at no cost to students and will be used in Principles of Chemistry I and Principles of Chemistry II at the University of North Georgia. The efforts of Dr. Konzelman and Dr. Giles will result in the typical STEM student saving more than \$280 in textbook costs.

In order to complete this ambitious project, the two faculty members will need time and resources. Through funding obtained from an Affordable Learning Georgia Textbook Transformation Grant, the Department of Chemistry & Biochemistry will cover the faculty members' time through a combination of release time/replacement coverage and/or release time/overload pay. Funding obtained from this grant will also be used to cover required faculty travel, necessary computer equipment, and a programmer's time. Once this project is completed, the Department of Chemistry & Biochemistry will sustain on-going improvements to the developed website through release time for Dr. Konzelman and/or Dr. Giles. Pending future funding/budgetary availability, the Department of Chemistry & Biochemistry will support the development of a similar site for Survey of Chemistry I and Survey of Chemistry II. In summary, the Department of Chemistry & Biochemistry at the University of North Georgia enthusiastically supports Dr. Konzelman and Dr. Giles in their collaborative effort to develop and use free learning materials that will replace the traditional textbooks that are currently in use.

Sincerely,

John D. Leyba, Ph.D.  
Professor of Chemistry  
Department Head  
Department of Chemistry & Biochemistry  
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*The University of North Georgia is designated as The Military College of Georgia and as a State Leadership Institution.*

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