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Application Summary

Competition Details

Competition Title:	Textbook Transformation Grants, Round Fifteen (Fall 2019 - Fall 2020)
Category:	University System of Georgia
Award Cycle:	Round 15
Submission Deadline:	09/16/2019 at 11:59 PM

Application Information

Submitted By:	Shantanu Chakraborty
Application ID:	3604
Application Title:	494
Date Submitted:	09/17/2019 at 8:35 AM

Personal Details

Institution Name(s):	Valdosta State University
Applicant First Name:	Shantanu
Applicant Last Name:	Chakraborty
Applicant Email Address:	shchakraborty@valdosta.edu
Applicant Phone Number:	229-249-2645
Primary Appointment Title:	Assistant Professor of Physics
Submitter First Name:	Shantanu
Submitter Last Name:	Chakraborty
Submitter Email Address:	shchakraborty@valdosta.edu
Submitter Phone Number:	229-249-2645
Submitter Title:	Assistant Professor of Physics

Application Details

Proposal Title

494

Requested Amount of Funding

\$10,800

Priority Category (if applicable)

Specific Core Curriculum Courses

Final Semester:

Fall 2020

Course Title(s)

The Universe of Energy (Physical Science)

Course Number(s)

PHSC 1100

Team Member 1 Name

Shantanu Chakraborty

Team Member 1 Email

shchakraborty@valdosta.edu

Team Member 2 Name

Dereth J. Drake

Team Member 2 Email

djdrake@valdosta.edu

Team Member 3 Name

Michael Holt

Team Member 3 Email

moholt@valdosta.edu

Team Member 4 Name

Team Member 4 Email

Additional Team Members (Name and email address for each)

Sponsor Name

Dr. Edward Chatelain

Sponsor Title

Chair and Professor, Department of Physics, Astronomy and Geosciences

Sponsor Department

Department of Physics, Astronomy and Geosciences, Valdosta State University

Average Number of Students per Course Section Affected by Project in One Academic Year

40

Average Number of Sections Affected by Project in One Academic Year

3

Total Number of Students Affected by Project in One Academic Year

120

Average Number of Students Affected per Summer Semester

Average Number of Students Affected per Fall Semester

50

Average Number of Students Affected per Spring Semester

50

Original Required Commercial Materials (title, author, price, and bookstore or retailer URL showing price)

Energy: Its use and the environment by Hinrichs and Klienbach, 5th Edition published by Cengage Learning (required); cost \$179.95

Energy, Environment and Climate by R. Wolfson, published by Norton (optional); cost \$60.00

Original Total Cost per Student

\$239.95

Post-Project Cost per Student

\$0

Post-Project Savings per Student

\$239.95

Projected Total Annual Student Savings per Academic Year

\$28,794

Using OpenStax Textbook?

Yes

Project Goals

The goals of this project are to lower the student's cost for the learning materials associated with The Universe of Energy (Physical Science I), to enhance the learning experience and to improve student success rate. To this end, we will offer no-cost, high quality learning materials for students in The Universe of Energy (PHSC 1100) at Valdosta State University by converting from the current textbook to the Concept of Physics (OpenStax) and the Concept of Chemistry (OpenStax) textbook. If adopted department-wide for all sections of this course, which is about 3 sections per year, the projected annual savings for the students would be \$28,794. By developing additional no-cost materials and incorporating relevant no-cost Open Educational Resources (OERs) to supplement lecture materials we can enhance the learning experience of our students. The students will have full access to this new free, open access textbook and relevant cost-free materials needed to succeed in the course. We anticipate an improvement in student enrollment, retention and successful completion of this course.

During the implementation of this project, we will continue to measure the effectiveness of this transformation by assessing DFW (Drop, Fail, and Withdraw) rates, course enrollment data and completion rates. To understand about the impact on the learning experience of students, we will collect student feedback through surveys provided periodically throughout each semester.

Statement of Transformation

The main stakeholders affected by this transformation will be the students who will gain access to free open access textbook and additional cost-free resources starting from the first day of the semester. Many of our students come from backgrounds which can hinder the purchase of expensive textbooks and other resource materials. Often times if they are waiting on financial aid payouts, students may not be able to purchase their textbooks until the third week of classes. Since most physical science textbooks, like the current required book, cost somewhere between \$180 and \$240, providing these free resources will reduce the financial burden of every student who enrolls in these courses and allow them access to course materials much sooner. Currently, PHSC 1100 belongs to the Area D (Natural Science, Math and Technology) of the VSU Core Curriculum which complies with all the University System of Georgia (USG) learning requirements. Moreover, PHSC 1100 (Physical Science I) falls into the specific category of USG Core Curriculum courses which have not had a Textbook Transformation Grant. Such Transformation project will have an institution-wide, as well a great state-wide impact. The current learning objectives of PHSC 1100 requires the students to demonstrate understanding of the physical universe and the nature of science, and they will use scientific methods and/or mathematical reasoning and concepts to solve problems. We project that by offering these additional resources students will be able to better meet the specific learning objectives for this course and thus have greater chance in successful completion the course.

- For this transformation, we will be converting from the current required textbook to the OpenStax Concept of Physics and Concept of Chemistry textbook. The text offers students many examples from a diverse range of fields, which helps students make the connection between what they are studying in physical science to what they experience in real world. We will incorporate open access resources from various open-access online sources in order to provide the students extra material to help them to meet the learning objectives for the course.
- Initially, only two of the faculty members will be using these resources during 2019-2020 academic year, our plan is to implement this transformation department wide starting in Fall 2020. Since, all the materials will be stored within a master course in Blazeview (Brightspace by D2L) as the course is developed, all the faculty members teaching this course at VSU will also have access to the teaching materials. The use of the no-cost textbook and the additional resources will be mandated by the department. This will ensure sustainability and availability of streamlined teaching materials institution-wide. Finally, the course materials will be published in open-access platforms in order to be shared with institutions throughout Georgia.
- The implementation of the cost-free OERs and conversion from purchased textbooks will attract more students to enroll in this course. The DFW rates, course enrollment data, completion rates and grades will be compared and assessed in regular interval to ensure the effectiveness of the transformation.
- By getting rid of required and proprietary textbook from the core courses, faculty members will be more encouraged to redesign, reuse and develop more open-access materials as needed. In a study conducted by Issack et al (2011) explored the innovation and sustainability of OERs which showed that "inclusion of OERs helped maintain a good quality level, sustain a viable economic model with reduction of tuition fees for learners, increase access and achieve the intended learning outcomes without any negative impact on the learners' experience". A survey by Student PIRG (Public Interest Research Group) in 2011 reported that "seven in 10 college students said they had not purchased a textbook at least once because they had found the price too high. Many more respondents said they had purchased a book whose price was driven up by common textbook-publishing practices, such as frequent new editions or bundling with other products." This survey, of 1,905 undergraduates on 13 campuses, included both large public universities and community colleges. Recently, Hilton J ([Education Tech Research and Development, 64\(4\), 573 – 590.](#)) synthesized the results of 16 studies that examined either (1) the influence of OER on student learning outcomes in higher education settings or (2) the perceptions of college students and instructors of OER. Results across multiple studies indicate that students generally achieve the same learning outcomes when OER are utilized and simultaneously save significant amounts of money. Studies across a variety of settings indicate that both students and faculty are generally positive regarding OER.

Transformation Action Plan

The Textbook Transformation will be done in such a way that VSU students can have full access to all the course materials through the current learning management system which is Blazeview (Brightspace) by D2L (Desire2Learn). All the current and future Physics, Astronomy and Engineering faculty members will have full access to all the course materials and will be able to accommodate any required changes to promote student success. Our action plan will have three parts: Identification and selection of materials, adoption and course redesign, and implementation and evaluation

- Identification and selection of materials

We have already chosen to adopt the new OpenStax Concept of Physics and Concept of Chemistry textbook to replace the current textbook by Hinrichs and Klienbach. Currently, we are in the process of identifying and locating no-cost, online resources, which can be used as supplemental materials for instruction in this course. Such resources include cost-free open access material located on YouTube, journal articles, from GALILEO, HyperPhysics, MERLOT and other open sources. Although some open-access interactive animation and video demonstrations do exist online. However, very few conceptual and relevant teaching materials are available online. As a subject matter expert and experienced instructor, Dr. Chakraborty will lead the identification and selection process of the open-access materials available online. The team will also utilize Mr. Holt's extensive experience as a reference librarian to identify, locate and compile relevant educational materials available through GALILEO and other accessible library resources. Mr. Holt will also be responsible for conducting thorough copyright research and confirming the accessibility of existing materials. In addition to the cost-free open access materials supplemental teaching materials for D2L modules will be developed by Dr. Chakraborty.

- Adoption and course redesign

During the Fall 2019 semester, we will begin working to design extensive modules on Blazeview (D2L), which will correlate with the relevant chapters of the Concept of Physics and Concept of Chemistry textbook to replace the current textbook. Currently, the PHSC 1100 course which focuses upon the theme of energy. Initially, the concept of energy as a physical quantity is developed and later it is utilized to analyze various examples of geological, meteorological, astrophysical, and chemical processes which involve energy. By adopting two OpenStax textbooks we will be able to focus more on the basic concepts of the physical sciences which includes the laws of motion, energy, electricity, magnetism, light, the chemical bonds, atomic structures and the role of energy on the chemical and nuclear processes etc. Such concepts are related to everyday applications of science and technology and the exploration of our universe. A successful completion of this course should require the students to meet the following specific learning outcomes:

- Understand the process of the scientific method and its application to evaluate claims or solve problems. Analyze or predict the behavior of physical objects by applying the laws of motion, gravity, momentum, and/or energy. Analyze or predict the behavior of electrically charged objects, with an emphasis on electrical circuits in the home. Use a basic understanding of the Periodic Table to predict physical or chemical properties of matter. Interpret the results of an experimental observation to determine a physical quantity, such as velocity, force, or electrical resistance.

Learning modules hosted on Blazeview (D2L) will be developed to better assist students towards success. Each of these extensive modules will include a study guide for the relevant chapter, a homework set, additional problems/work-sheet for extra practice, quizzes to check the student's understanding of key concepts, PowerPoint slides (if used for lectures), and links or copies of the chosen open-access resources, which may include demonstration videos and videos of sample problems. Current learning management system, Blazeview (D2L) is well equipped to host and conduct online homework and quizzes which will help the instructors to keep track of the student learning. It also eliminates the need of additional homework or adaptive platforms. The team will utilize Dr. Drake's expertise as a subject matter expert and also as an instructional designer to develop the extensive D2L modules. Additionally, being experienced at both traditional lecture and hybrid teaching format Dr. Drake would be able to make the D2L modules adaptable for both formats.

In Spring 2020, from the first day of the class all enrolled students will have full access to these resources through Blazeview (D2L) and public access to all these materials will be available through Vtext Intuition Repository, LibGuides and Galileo by Summer 2020. Thus, students will have access to these materials from anywhere they are

able to access the internet. All other instructors will also have open access to these materials. And since all instructors will be encouraged to use these resources for all sections of this courses at VSU, this will ensure continuity across the different sections of each course.

It will be Dr. Chakraborty's role to lead this project as subject matter expert and will be listed as the instructor of record for Spring 2020. While Dr. Chakraborty will be responsible for compiling the open-access online materials and developing required supplemental materials for the D2L modules. Dr. Drake having vast experience as an instructional designer and as subject matter expert, will be responsible for revision and updates of the D2L modules to make the materials more adaptable. Being well versed with pedagogy and technical aspects of textbook transformation project, Mr. Holt will be initially working with Dr. Chakraborty to locate and compile the open-access materials available through the library resources. Later, Mr. Holt will organize and host the D2L modules in LibGuides, GALILEO and Vtext.

- Implementation and evaluation

We plan to implement the new outline for the course from Spring 2020. During this semester, we will be studying which resources students utilize most often through the "Completion Summary" report at the end of each module. Periodically, surveys will be provided to students to determine their perception of the helpfulness of each resource as well as suggestions from students on additional resources they would like to see added.

At the end of the Spring 2020 semester, surveys will be conducted through the Student Opinion of Instruction (SOI) where the instructors can add additional questions to determine the students' perception on various aspects of the course. Students who withdraw or drop the course will also be sent invitations to complete the Dropped Course Survey. Data of students' perception of course along with the DFW rates, exam scores, assessment of learning outcomes and grades will be compiled for the course from Spring 2020. These rates will be compared with those of the course taught during the Summer 2019 and Fall 2019 semester. Any suggestions or revisions to the modules in D2L will be made at this time by Dr. Drake during Summer 2020. The updated materials will be used in Summer 2020, with continuous evaluation. The revised materials will be hosted and updated by Mr. Holt in LibGuides (which is VSU's open-source institutional repository), GALILEO and Vtext towards the end of Summer 2020. The updated materials will be used during Fall 2020 and future courses, with continuous evaluation throughout the semesters. More information on specific evaluations is discussed in the next section of this application.

Quantitative & Qualitative Measures

Throughout the length of this project, we will be using quantitative and qualitative measures to determine the impact of this transformation on student success.

- Quantitative Measures

We will be examining four different measures throughout the length of this project: DFW rates, course enrollment data, completion rates (with grades) and Pre- and Post- Surveys.

DFW rate

Through the department chair, we have access to the DFW rates for all students enrolled in PHSC 1100 during previous years. At the end of each semester, we will be comparing the DFW rates for the course taught using the new format to those using the traditional format with required proprietary textbook.

Course enrollment data

Each semester we will be examining the enrollment data for these two courses. Our goal is to see if offering open access materials positively impacts the student enrollment in this course.

Completion rates

The quantitative measure employed is to investigate the change of completion rates. As with the DFW rate, we will have access to the completion rates for the past three years through our department chair. We will also evaluate the performance of the students at various phases of the course via the exams taken by the students at Blazeview (D2L). We will also analyze the final grades and the compared them with previous years. At the end of each semester, we will be accessing these reports to determine if the completion rate and the student performance have improved by using these no-cost materials.

Pre and Post- Surveys

A survey will be given at the beginning and at the end of the course to find out the student's preference between a traditional textbook and the newly developed OERs with OpenStax textbook. These identical surveys will also include student's opinion regarding the online resource usage, the quality of the developed contents and the role of the D2L materials in their success. Quantitative questions can be answered by selecting either Strongly Agree, Agree, Neutral, Disagree, or Strongly Disagree (using a Likert scale).

- Qualitative Measures

We will be examining two different qualitative measures throughout the length of this project: student feedback through surveys and completion summary reports through D2L.

Student feedback through Pre and Post -Surveys

Pre and Post Surveys offered to the students will also be used to gauge their impressions of various items, such as comprehensiveness of the course, effectiveness of the D2L materials, cost and cohesion between the OpenStax textbook and the supplemental materials of D2L. These surveys (using a Likert scale) will help us to gauge student interest as well as provide us with information on other resources the students may have found when they were studying for this course.

Completion Summary reports

One of the many reports available through D2L is the Completion Summary Report. These reports allow us to

determine which students accessed specific materials and when they accessed it. Throughout each semester, we will be examining these reports in order to determine which resources the students utilize the most. Then at the end of the semester, we will replace any resources that students rarely use and add additional resources similar to the ones they use the most.

Timeline

October 2019: Identify and locate no-cost, additional course materials available in online and through the VSU library resources

November 2019 - January 2020: Design modules in D2L and develop supplemental instructional materials

Spring 2020: Overload for Dr. Chakraborty

May 2020 – June 2020: Compile data from Spring 2020 classes and revise course materials based on student feedback. Mr. Holt will start designing the LibGuides and also upload the available D2L course materials to Vtext.

Summer 2020: Release time/salary for Dr. Drake to revise the course materials based on student feedback and to make necessary updates of the D2Lmodules.

June 2020 - July 2020: Continue implementation with revisions.

Fall 2020: Overload for Mr. Holt. Release time/salary for Mr. Holt for updating the LibGuides and uploading materials to Vtext and GALILEO.

August 2020 – November 2020: Data collection on student achievement begins, Co-investigators start to compile data and continue to implement revised course materials based on student feedback. Revised course materials also being shared and updated in LibGuides, Vtext and GALILEO.

Budget

- Dr. Shantanu Chakraborty - \$3333 for overload in Spring 2020
- Dr. Dereth J. Drake - \$3333 for salary/release time in Summer 2020
- Mr. Michael Holt - \$3333 for salary/release time in Fall 2020
- Travel for at least two team members to attend grant kick-off meeting - \$800

Sustainability Plan

The overall goal for this project is to create a master course model, which include corresponding modulus for each section of the textbook. All materials will be available to every instructor prior to the beginning of the semester through Blazeview (D2L) and allow each instructor to customize the materials to their own teaching style. The master course and modules will be made available to faculty at all other USG institutions through Vtext Institutional Repository and LibGuides. Dr. Chakraborty and Dr. Drake will be responsible for maintaining the course materials for the foreseeable future. Since web links can break often in LibGuides, Mr. Holt will closely monitor the links and provide updates as needed for the project duration and after the project is completed. Mr. Holt will be responsible for maintaining and publishing all the D2L materials in Vtext and LibGuides sites for the foreseeable future. Dr. Chakraborty will continue to develop new assignments, practice problem sets and quizzes even after this ALG project ends. The future goal of this work includes the conversion the D2L it from traditional lecture format to hybrid format to make the course more available and attractive to the future students.

Acknowledgment

Grant Acceptance

[Acknowledged] I understand and acknowledge that acceptance of Affordable Learning Georgia grant funding constitutes a commitment to comply with the required activities listed in the RFP and that my submitted proposal will serve as the statement of work that must be completed by my project team. I further understand and acknowledge that failure to complete the deliverables in the statement of work may result in termination of the agreement and funding.

September 10th, 2019

To Whom It May Concern,

This letter is in enthusiastic support of Affordable Learning Georgia Textbook Transformation Grant proposal submitted by Dr. Shantanu Chakraborty (Assistant Professor of Physics) and Dr. Dereth Drake (Associate Professor of Physics) in the Department of Physics, Astronomy, and Geosciences, and Mr. Michael Holt (Reference Librarian) in the Odom Library at Valdosta State University. The project outlined by this proposal is an essential and timely endeavor in this age of soaring textbook costs in the State of Georgia.

The first three weeks of the PHSC 1100 class are important in determining student success in this course, particularly because The Universe of Energy carries a significant mathematical component. At this stage in the semester, a number of students have not yet purchased their textbook due to financial considerations, or delays in financial aid, putting them at serious risk of failure or to attempt to play catch-up for the entire semester in that class. It is imperative that they have immediate access to problem sets and their solutions from the very first homework assignment. Not only does this project provide each student with instant access to all course materials from the first day of class, but it eliminates the cost of textbooks for this course, which for non-science majors can be overwhelming.

Most course drops and withdrawals that occur in the first few weeks of class would be prevented, and the rigor of the course can be embraced by all students equally and immediately. This course is the most quantitative of the three non-lab science core courses available to the students at VSU, and has recently appeared as a new required course in several long-standing program curricula. Therefore, the challenges of raising student retention for the university and graduation in a timely fashion for the student are both satisfied by the results of this grant.

Sustainability of this project at Valdosta State University is particularly vital, as enrollment and retention concerns have become especially important to maintaining our Physics program. I see this study as an essential key to success of both students and science departments in the USG.

Your consideration on this matter is greatly appreciated. Thank you.

Sincerely,



Edward E Chatelain, Head
Physics, Astronomy, and Geosciences



Textbook Transformation Grants, Round Fifteen (Fall 2019 – Fall 2020) Proposal Form and Narrative

Notes

- The proposal form and narrative .docx file is for offline drafting and review. Submitters must use the InfoReady Review online form for proposal submission.
- The only way to submit the official proposal is through the online form in Georgia Tech's InfoReady Review. The link to the online application will be on the [Round 15 RFP Page](#) in July 2019.
- The italic text provided below is meant for clarifications and can be deleted.

Applicant, Team, and Sponsor 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, leave the submitter fields blank.

Institution(s)	Valdosta State University
Applicant Name	Dr. Shantanu Chakraborty, Dr. Dereth J. Drake, Michael Holt
Applicant Email	shchakraborty@valdosta.edu , djdrake@valdosta.edu , moholt@valdosta.edu
Applicant Phone #	229-249-2645, 229-249-4852, 229-333-7105
Applicant Position/Title	Assistant Professor of Physics, Associate Professor of Physics, Associate Professor and Reference Librarian
Submitter Name	Dr. Shantanu Chakraborty
Submitter Email	shchakraborty@valdosta.edu
Submitter Phone #	2292492645
Submitter Position	Assistant Professor of Physics

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.

	Name	Email Address
Team Member 1	Shantanu Chakraborty	shchakraborty@valdosta.edu
Team Member 2	Dereth J. Drake	djdrake@valdosta.edu
Team Member 3	Michael Holt	moholt@valdosta.edu
Team Member 4		
Team Member 5		
Team Member 6		
Team Member 7		
Team Member 8		

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

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Please provide the sponsor's name, title, department, and institution. The sponsor is the provider of your Letter of Support.

Dr. Edward Chatelain, Chair, Department of Physics, Astronomy and Geosciences, Valdosta State University	
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Project Information and Impact Data

Priority Category / Categories	<i>"Specific Core Curriculum Courses"</i>
Requested Amount of Funding	\$10,800
Course Names and Course Numbers	PHSC 1100: The Universe of Energy
Final Semester of Project	<i>Fall 2020</i>
Average Number of Students Per Course Section Affected by Project	40
Average Number of Sections Affected by Project in One Academic Year	3
Total Number of Students Affected by Project in One Academic Year	120
Average Number of Students Affected per Summer Semester	20
Average Number of Students Affected per Fall Semester	50
Average Number of Students Affected per Spring Semester	50
Original Required Commercial Materials	<i>Energy: Its use and the environment</i> by Hinrichs and Klienbach, 5 th Edition published by Cengage Learning (required); cost \$179.95 <i>Energy, Environment and Climate</i> by R. Wolfson, published by Norton (optional); cost \$60.00
Total Price of Original Required Materials Per Student	\$239.95
Post-Project Cost Per Student	\$0
Post-Project Savings Per Student	\$239.95
Projected Total Annual Student	\$28,794

Savings Per Academic Year	
Using OpenStax Textbook?	Yes. "Concept of Physics" and "Concept of Chemistry".

Narrative Section

1. Project Goals

The goals of this project are to lower the student's cost for the learning materials associated with The Universe of Energy (Physical Science I), to enhance the learning experience and to improve student success rate. To this end, we will offer no-cost, high quality learning materials for students in The Universe of Energy (PHSC 1100) at Valdosta State University by converting from the current textbook to the Concept of Physics (OpenStax) and the Concept of Chemistry (OpenStax) textbook. If adopted department-wide for all sections of this course, which is about 3 sections per year, the projected annual savings for the students would be \$28,794. By developing additional no-cost materials and incorporating relevant no-cost Open Educational Resources (OERs) to supplement lecture materials we can enhance the learning experience of our students. The students will have full access to this new free, open access textbook and relevant cost-free materials needed to succeed in the course. We anticipate an improvement in student enrollment, retention and successful completion of this course.

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During the Fall 2019 semester, we will begin working to design extensive modules on Blazeview (D2L), which will correlate with the relevant chapters of the *Concept of Physics* and *Concept of Chemistry* textbook to replace the current textbook. Currently, the PHSC 1100 course which focuses upon the theme of energy. Initially, the concept of energy as a physical quantity is developed and later it is utilized to analyze various examples of geological, meteorological, astrophysical, and chemical processes which involve energy. By adopting two OpenStax textbooks we will be able to focus more on

the basic concepts of the physical sciences which includes the laws of motion, energy, electricity, magnetism, light, the chemical bonds, atomic structures and the role of energy on the chemical and nuclear processes etc. Such concepts are related to everyday applications of science and technology and the exploration of our universe. A successful completion of this course should require the students to meet the following specific learning outcomes:

- Understand the process of the scientific method and its application to evaluate claims or solve problems.
- Analyze or predict the behavior of physical objects by applying the laws of motion, gravity, momentum, and/or energy.
- Analyze or predict the behavior of electrically charged objects, with an emphasis on electrical circuits in the home.
- Use a basic understanding of the Periodic Table to predict physical or chemical properties of matter.
- Interpret the results of an experimental observation to determine a physical quantity, such as velocity, force, or electrical resistance.

Learning modules hosted on Blazeview (D2L) will be developed to better assist students towards success. Each of these extensive modules will include a study guide for the relevant chapter, a homework set, additional problems/work-sheet for extra practice, quizzes to check the student's understanding of key concepts, PowerPoint slides (if used for lectures), and links or copies of the chosen open-access resources, which may include demonstration videos and videos of sample problems. Current learning management system, Blazeview (D2L) is well equipped to host and conduct online homework and quizzes which will help the instructors to keep track of the student learning. It also eliminates the need of additional homework or adaptive platforms. The team will utilize Dr. Drake's expertise as a subject matter expert and also as an instructional designer to develop the extensive D2L modules. Additionally, being experienced at both traditional lecture and hybrid teaching format Dr. Drake would be able to make the D2L modules adaptable for both formats.

In Spring 2020, from the first day of the class all enrolled students will have full access to these resources through Blazeview (D2L) and public access to all these materials will be available through Vtext Intuition Repository, LibGuides and Galileo by Summer 2020. Thus, students will have access to these materials from anywhere they are able to access the internet. All other instructors will also have open access to these materials. And since all instructors will be encouraged to use these resources for all sections of this courses at VSU, this will ensure continuity across the different sections of each course.

It will be Dr. Chakraborty's role to lead this project as subject matter expert and will be listed as the instructor of record for Spring 2020. While Dr. Chakraborty will be responsible for compiling the open-access online materials and developing required

supplemental materials for the D2L modules. Dr. Drake having vast experience as an instructional designer and as subject matter expert, will be responsible for revision and updates of the D2L modules to make the materials more adaptable. Being well versed with pedagogy and technical aspects of textbook transformation project, Mr. Holt will be initially working with Dr. Chakraborty to locate and compile the open-access materials available through the library resources. Later, Mr. Holt will organize and host the D2L modules in LibGuides, GALILEO and Vtext.

- Implementation and evaluation

We plan to implement the new outline for the course from Spring 2020. During this semester, we will be studying which resources students utilize most often through the “Completion Summary” report at the end of each module. Periodically, surveys will be provided to students to determine their perception of the helpfulness of each resource as well as suggestions from students on additional resources they would like to see added.

At the end of the Spring 2020 semester, surveys will be conducted through the Student Opinion of Instruction (SOI) where the instructors can add additional questions to determine the students’ perception on various aspects of the course. Students who withdraw or drop the course will also be sent invitations to complete the Dropped Course Survey. Data of students’ perception of course along with the DFW rates, exam scores, assessment of learning outcomes and grades will be compiled for the course from Spring 2020. These rates will be compared with those of the course taught during the Summer 2019 and Fall 2019 semester. Any suggestions or revisions to the modules in D2L will be made at this time by Dr. Drake during Summer 2020. The updated materials will be used in Summer 2020, with continuous evaluation. The revised materials will be hosted and updated by Mr. Holt in LibGuides (which is VSU’s open-source institutional repository), GALILEO and Vtext towards the end of Summer 2020. The updated materials will be used during Fall 2020 and future courses, with continuous evaluation throughout the semesters. More information on specific evaluations is discussed in the next section of this application.

4. Quantitative and Qualitative Measures

Throughout the length of this project, we will be using quantitative and qualitative measures to determine the impact of this transformation on student success.

- Quantitative Measures

We will be examining four different measures throughout the length of this project: DFW rates, course enrollment data, completion rates (with grades) and Pre- and Post- Surveys.

DFW rate

Through the department chair, we have access to the DFW rates for all students enrolled in PHSC 1100 during previous years. At the end of each semester, we will be comparing the DFW rates for the course taught using the new format to those using the traditional format with required proprietary textbook.

Course enrollment data

Each semester we will be examining the enrollment data for these two courses. Our goal is to see if offering open access materials positively impacts the student enrollment in this course.

Completion rates

The quantitative measure employed is to investigate the change of completion rates. As with the DFW rate, we will have access to the completion rates for the past three years through our department chair. We will also evaluate the performance of the students at various phases of the course via the exams taken by the students at Blazeview (D2L). We will also analyze the final grades and the compared them with previous years. At the end of each semester, we will be accessing these reports to determine if the completion rate and the student performance have improved by using these no-cost materials.

Pre and Post- Surveys

A survey will be given at the beginning and at the end of the course to find out the student's preference between a traditional textbook and the newly developed OERs with OpenStax textbook. These identical surveys will also include student's opinion regarding the online resource usage, the quality of the developed contents and the role of the D2L materials in their success. Quantitative questions can be answered by selecting either Strongly Agree, Agree, Neutral, Disagree, or Strongly Disagree (using a Likert scale).

- Qualitative Measures

We will be examining two different qualitative measures throughout the length of this project: student feedback through surveys and completion summary reports through D2L.

Student feedback through Pre and Post -Surveys

Pre and Post Surveys offered to the students will also be used to gauge their impressions of various items, such as comprehensiveness of the course, effectiveness of the D2L materials, cost and cohesion between the OpenStax textbook and the supplemental materials of D2L. These surveys (using a Likert scale) will help us to gauge student interest as well as provide us with information on other resources the students may have found when they were studying for this course.

Completion Summary reports

One of the many reports available through D2L is the Completion Summary Report. These reports allow us to determine which students accessed specific materials and

when they accessed it. Throughout each semester, we will be examining these reports in order to determine which resources the students utilize the most. Then at the end of the semester, we will replace any resources that students rarely use and add additional resources similar to the ones they use the most.

5. Timeline

October 2019: Identify and locate no-cost, additional course materials available in online and through the VSU library resources

November 2019 - January 2020: Design modules in D2L and develop supplemental instructional materials

Spring 2020: Overload for Dr. Chakraborty

May 2020 – June 2020: Compile data from Spring 2020 classes and revise course materials based on student feedback. Mr. Holt will start designing the LibGuides and also upload the available D2L course materials to Vtext.

Summer 2020: Release time/salary for Dr. Drake to revise the course materials based on student feedback and to make necessary updates of the D2Lmodules.

June 2020 - July 2020: Continue implementation with revisions.

Fall 2020: Overload for Mr. Holt. Release time/salary for Mr. Holt for updating the LibGuides and uploading materials to Vtext and GALILEO.

August 2020 – November 2020: Data collection on student achievement begins, Co-investigators start to compile data and continue to implement revised course materials based on student feedback. Revised course materials also being shared and updated in LibGuides, Vtext and GALILEO.

6. Budget

- Dr. Shantanu Chakraborty - \$3333 for overload in Spring 2020
- Dr. Dereth J. Drake - \$3333 for salary/release time in Summer 2020
- Mr. Michael Holt - \$3333 for salary/release time in Fall 2020
- Travel for at least two team members to attend grant kick-off meeting - \$800

7. Sustainability Plan

The overall goal for this project is to create a master course model, which include corresponding modulus for each section of the textbook. All materials will be available to every instructor prior to the beginning of the semester through Blazeview (D2L) and allow each instructor to customize the materials to their own teaching style. The master course and modules will be made available to faculty at all other USG institutions through Vtext Institutional Repository and LibGuides. Dr. Chakraborty and Dr. Drake will be responsible for maintaining the course materials for the foreseeable future. Since web links can break often in LibGuides, Mr. Holt will closely monitor the links and provide updates as needed for the project duration and after the project is completed. Mr. Holt will be responsible for maintaining and publishing all the D2L materials in Vtext and LibGuides sites for the foreseeable future. Dr. Chakraborty will continue to develop new assignments, practice problem sets and quizzes even after this ALG project ends. The future goal of this work includes the conversion the D2L it from traditional lecture format to hybrid format to make the course more available and attractive to the future students.

Note: Letter of Support

A letter of support must be provided from the sponsoring area (unit, office, department, school, library, campus office of the Vice President for Academic Affairs, etc.) that will be responsible for receipt and distribution of funding. Letters must reference sustainability. In the case of multi-institutional affiliations, all participants' institutions/departments must provide a letter of support.