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Geological Sciences and Geography

Summer 2018

Resources, Society, and the Environment (VSU)

Jia Lu

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Jessica Taylor

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Grants Collection

Valdosta State University



UNIVERSITY SYSTEM
OF GEORGIA

Jia Lu and Jessica Taylor

Resources, Society, and the Environment





Grants Collection

Affordable Learning Georgia Grants Collections are intended to provide faculty with the frameworks to quickly implement or revise the same materials as a Textbook Transformation Grants team, along with the aims and lessons learned from project teams during the implementation process.

Each collection contains the following materials:

- **Linked Syllabus**
 - The syllabus should provide the framework for both direct implementation of the grant team's selected and created materials and the adaptation/transformation of these materials.
- **Initial Proposal**
 - The initial proposal describes the grant project's aims in detail.
- **Final Report**
 - The final report describes the outcomes of the project and any lessons learned.



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Initial Proposal

Application Details

Manage Application: ALG Textbook Transformation Grants

Award Cycle: Round 9

Internal Submission Deadline: Sunday, April 30, 2017

Application Title: 330

Application ID: #001760

Submitter First Name: Jia

Submitter Last Name: Lu

Submitter Title: Associate Professor of Environmental Geosciences

Submitter Email Address: jlu@valdosta.edu

Submitter Phone Number: 229-333-7065

Submitter Campus Role: Proposal Investigator (Primary or additional)

Applicant First Name: Jia

Applicant Last Name: Lu

Co-Applicant Name: --

Applicant Email Address: 229-333-7065

Applicant Phone Number: 229-333-7065

Primary Appointment Title: Associate Professor of Environmental Geosciences

Institution Name(s): Valdosta State University

Submission Date: Monday, May 1, 2017

Proposal Title: 330

Final Semester of Instruction: Spring 2018

Team Members (Name, Title, Department, Institutions if different, and email address for each):

Jia Lu, Associate Professor of Geosciences, Department of Physics, Astronomy, and Geosciences, jlu@valdosta.edu

Jessica Taylor, Webmaster, Department of Physics, Astronomy, and Geosciences, jnkimsey@valdosta.edu

Sponsor, (Name, Title, Department, Institution):

Dr. Edward Chatelain, Head, Department of Physics, Astronomy, and Geosciences, Valdosta State University

Course Names, Course Numbers and Semesters Offered:

Geography 1125: Resources, Society and Environment, Summer, Spring, Fall 2017 (every semester). It is our university's equivalent of "Introductory to Environmental Geoscience" course, just with a different name. Not only is this course listed in the university's core curriculum, but it is also listed as one of the top 100 Undergraduate Courses at USG.

Average Number of Students per Course Section: 30

Number of Course Sections Affected by Implementation in Academic Year: 5

Total Number of Students Affected by Implementation in Academic Year: 150

List the original course materials for students (including title, whether optional or required, & cost for each item): Environmental Science for a Changing World. 2015, 2nd Edition, by Susan Karr, Jeneen Interlandi and Anne Houtman: W. H. Freeman and Company, New York. (required).Bookstore cost: \$166.90.

Proposal Categories: No-Cost-to-Students Learning Materials

Requested Amount of Funding: \$10,800

Original per Student Cost: \$166.90

Post-Proposal Projected Student Cost: \$0

Projected Per Student Savings: \$166.90

Projected Total Annual Student Savings: \$25,035

Creation and Hosting Platforms Used ("n/a" if none):

LibGuides, hosted by Valdosta State University's Library, free to everyone online, and can also be accessed through GALILEO Open Learning Materials.

Project Goals:

Our goal is to offer low-cost, high quality, and interesting learning materials for students in the introductory to environmental science course (GEOG 1125 – Resources, Society and Environment) at Valdosta State University (VSU). Since VSU only has an Environmental Science minor, all Environmental Science related courses falls under the umbrella of Geography – hence the GEOG course prefix. We will be switching from the current textbook to a combination of our new supplementary materials and two textbooks: Sustainability: A Comprehensive Foundation by Tom Theis and Jonathan Tomkin and Introduction to Environmental Science by Caralyn Zehnder, Kalina Manoylov, Samuel Mutiti, Christine Mutiti, Allison VandeVoort, and Donna Bennett (2016). The books will be adopted for all sections of this course which generally averages at five per year. In addition, the projected annual savings for students would be about \$25,035.

The goal is to create additional no-cost Open Educational Resources (OERs) to help supplement lecture and textbook material. While the two textbooks are excellent, the supplemental material, and especially the exercises and exams which are essential for mastery of the subject, are less ideal for our students.

By offering this new open access textbook and OERs at no cost to the students, we hope to improve both course enrollment and DFW (drop, fail, and withdrawal) rates.

The effectiveness of this transformation will be measured by comparing student's course success rates between the courses taught using the new OERs and those taught using the traditional material, as well as through student feedback on surveys conducted periodically throughout each semester in which this course is taught.

Statement of Transformation:

Students enrolled in GEOG 1125 at Valdosta State University will be the main group affected by this transformation considering they are gaining access to a free open access textbook and educational resources. Many of our students come from disadvantaged economic backgrounds that can make the purchase of expensive textbooks and other resource materials difficult and burdensome. It is not uncommon that students have to wait on financial aid payouts, and are not able to purchase their textbooks until the third week of classes—sometimes not even purchase the books at all. Providing these free resources will reduce the financial burden for each student who enrolls in this course and allow them access to course materials much sooner. In addition, since the textbook will be in PDF form, it can be downloaded to a laptop, tablet, phone, or school computer, enabling students to study in spare moments and in places where it would be awkward to carry a large textbook. By offering these free and mobile resources, we hope that students will better meet the learning objectives for this course along with a higher course completion rate.

For this textbook transformation, we will be converting from the current purchased textbook to the two open-sourced textbooks that are available on OpenStax and GALILEO. This course is

VSU's equivalent of "Introductory to Environmental Geoscience" course, just with a different name. Since the course is listed in both the top 100 Undergraduate Courses and our university core curriculum, it is a popular course and the books should be excellent choices. The text offers students many examples from various fields of environmental science, which helps students make the connection between what they are studying in theories to what they are doing in their life. Additionally, the author gives very clear explanations of the concepts and does not distract students with side issues. We will add more open access resources from numerous online sources as well as material that we produce. In turn, this will give the students a broader perspective, allowing them to better meet the learning objectives for this course.

We believe that the implementation of the OERs and conversion from purchased textbooks will attract more students and increase enrollment for this course. As a freshman-level science course, it has the potential of reaching wide audiences and attracting more students to our major.

Transformation Action Plan:

Our action plan will include three parts:

- 1.) Identification and selection or creation of materials
- 2.) Adoption and course redesign
- 3.) Implementation and evaluation

Identification and selection or creation of materials:

We have chosen to adopt the two open-source textbooks and are in the process of identifying and locating more online resources at no-cost, which can be used as supplemental materials for instruction in this course. These resources include material found on YouTube, GALILEO, and MERLOT. In addition, more supplementary assignments, quizzes, and quizzes will be created by Dr. Lu, and the graphics will be designed and arranged by Ms. Taylor.

Adoption and course redesign:

During the Summer 2017, we will be working to design modules on the university library website LibGuides and add corresponding links in the D2L, which correlate with each chapter in the two textbooks. Each module will include a study guide, discussion questions, additional problems for extra practice, quizzes, flash cards for checking knowledge of concepts, PowerPoint slides (if used for lectures), and links or copies of the chosen education resources, which may include demonstration videos and video sample problems.

VSU administers all online courses through D2L learning management systems. Not only will

students have access to these resources through the course in D2L, but they will also be available for public access through LibGuides, which is our open-source institutional repository. Therefore, our students will have full access to these materials anywhere they are able to access the internet.

Dr. Lu has been listed as the instructor of the course in Fall 2017 and beyond. It will be her role to lead this project as subject matter expert and instructional designer. In addition, she will be responsible for creating supplemental problem sets. Ms. Taylor will be responsible for putting all materials on LibGuides and D2L. Ms. Taylor's web service, graphic design experience, and business degrees will help make the course materials more marketable and attractive to the student population. Alongside with design, Ms. Taylor will be responsible for conducting thorough copyright research, creating / editing accessible materials, and confirming the accessibility of existing materials. She will also be helping to organize the materials in LibGuides on our university library website. In addition, since web links can break often in LibGuides, Ms. Taylor will closely monitor the links and provide updates as needed for the project duration and after the project is completed.

Implementation and evaluation:

We plan to implement the new outline for the course in Fall 2017. During this semester, we will be studying which resources students utilize most often through the "Completion Summary" report for each resource. 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 Fall semester, data will be compiled to determine the students' discernment along with the DFW rates for the course. Any suggestions or changes to the modules in D2L and LibGuides will be made at this time. The updated materials will be used during Spring 2018 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: Both quantitative and qualitative measures will be applied to determine the impact of this transformation on student success throughout the length of this project.

Quantitative Measures: Three different measures will be examined throughout the project:

- 1.) DFW rates / Course enrollment data
- 2.) Completion rates.

DFW rate: Through our department head, we will have access to the DFW rates for all students enrolled in GEOG 1125 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 purchased textbook. We will also be able to see enrollment trends while using the new materials.

Completion rates: The quantitative measure employed is to investigate the change of completion rates. We have access to the completion rates for the past years through our department head. At the end of each semester, we will be accessing these reports to measure if the completion rate has improved by using these no-cost materials.

Qualitative Measures: We will be examining two different qualitative measures: 1.) Student feedback through surveys and 2.) Completion summary reports through D2L.

Student feedback through surveys: Surveys will be randomly distributed throughout each semester to students in order to gauge their perception of how helpful the textbook and the other OERs available to them appear to be. These surveys will help us to measure student interest as well as provide us with information on other resources the students may have found when they were studying for this course. In order to not contaminate this measure, students will not be aware that we are using this data since we are not tying them to grades.

Completion Summary reports: One of the many tools 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,

these reports will be examined in order to determine which resources the students utilize the most. In order to be objective, we will not notify students that we are using the Completion Summary Report tool, so students will not be aware of that. By 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:

June 2017: Team members attend the kickoff meeting, as well as identify and locate no-cost, online additional course materials.

July 2017: Design modules in LibGuides and create links to them in D2L.

July - August 2017: Create new supplemental materials, including flashcards, discussion questions, videos, etc. In addition, during this time frame, copyright clearance will take place for materials that are not developed in-house, and Ms. Taylor will be in charge of this.

Summer 2017: Salary/release time for Dr. Lu.

Fall 2017: Implement new course materials, collect data on student achievement begins. Submit status report at the end of the semester.

December 2017 - January 2018: Compile data from Fall 2017 classes and revise course materials based on student feedback. Upload revised course materials to LibGuides, and create web links to these materials in D2L.

February - May 2018: Continue implementation with revisions.

May 2018: Co-investigators compile data and revise course materials based on student feedback. Submit final report at the end of the semester.

Budget:

Dr. Jia Lu - \$5,000 for salary / release time in Summer 2017.

Ms. Jessica Taylor - \$5000 for salary / release time.

Travel for two team members to attend grant kick-off meeting - \$800.

Sustainability Plan:

Our goal for this project is to create a course model, including corresponding modules for each

section of the textbook. All materials will be available prior to the beginning of the Fall semester through LibGuides and D2L. The course and modules will be made available to faculty at all other USG institutions through LibGuides. Dr. Lu will be responsible for maintaining the course materials and Ms. Taylor will be responsible for maintaining the LibGuides websites for the foreseeable future, including updating web links which could change from time to time. Dr. Lu will continue to develop new assignments even after this ALG project is finished. Overall, all of the resources that we develop will be very useful and will save our students a lot of money.



April 11, 2017

Dear Textbook Transformation Grant Administrators,

On behalf of the Department of Physics, Astronomy, and Geosciences of Valdosta State University, I support Dr. Jia Lu's application for the Textbook Transformation Grant for Geography 1125 "Resources, Society and Environment" course. We will provide necessary support and assistance that Dr. Lu and Ms. Taylor need to make this project successful. The current textbook costs \$166.90 per student. While many of our students cannot afford purchasing the book early which caused their falling behind in the study and were forced to withdraw from the course later. After this textbook transformation project, our students will get the textbook free and this will help to improve their success in this class and increase our enrollment. All materials developed from this project will be available to faculty at all other USG institutions through LibGuides. Dr. Lu will be responsible for maintaining the course materials and Ms. Taylor will be responsible for maintaining the LibGuides websites for the foreseeable future. Dr. Lu will continue to develop new assignments even after this ALG project is finished.

Dr. Lu's involvement with our students and her effort in innovative teaching has been impressive. She is one of the most active researchers and grant-awardees in our department. Ms. Taylor is very talented in web service and graphic design. It is with great pleasure that I provide my strong support for Dr. Lu and Ms. Taylor, as well as their application for this grant.

Sincerely,

Edward E. Chatelain

Edward E. Chatelain, Head
Department of Physics, Astronomy, and Geosciences
Valdosta State University

Affordable Learning Georgia Textbook Transformation Grants

Round Nine

For Implementations beginning Summer Semester 2017

Running Through Spring Semester 2018

Proposal Form and Narrative

- *The proposal form and narrative .docx file is for offline drafting and review. Submitters must use the InfoReady Review online form for proposal submission.*
- **Note: The only way to submit the proposal is through the online form in Georgia Tech’s InfoReady Review at:**
<https://gatech.infoready4.com/#competitionDetail/1757803> _
- *If you are copying and pasting into InfoReady Review from this form, first convert the file to **plain text** and copy/paste from the plain text file.*
 - o *In Word, go to File > Save As... > and change the file format to “Plain Text (.txt).”*
 - o *Copy and paste from the .txt file.*
 - o *Be sure to save both copies in case you are asked to resubmit.*
- *Microsoft Word Document formatting pasted into InfoReady Review will render the reviewer copy unreadable. **If you paste Word-formatted tables into InfoReady Review, you may be asked to resubmit your application if time permits.***
- *Italicized text is provided for your assistance; please do not keep the italicized text in your submitted proposal. Proposals that do not follow the instructions may be returned.*

Submitter Name	Jia Lu
Submitter Title	Associate Professor of Environmental Geosciences
Submitter Email	jlu@valdosta.edu

Submitter Phone Number	229-333-7065
Submitter Campus Role	Proposal Investigator (Primary or Additional)
Applicant Name	Jia Lu
Applicant Email	jlu@valdosta.edu
Applicant Phone Number	229-333-7065
Primary Appointment Title	Associate Professor of Environmental Geosciences
Institution Name(s)	Valdosta State University
Team Members	Jia Lu, Associate Professor of Geosciences, Department of Physics, Astronomy, and Geosciences, jlu@valdosta.edu Jessica Taylor, Webmaster, Department of Physics, Astronomy, and Geosciences, jnkimsey@valdosta.edu
Sponsor, Title, Department, Institution	Dr. Edward Chatelain, Head, Department of Physics, Astronomy, and Geosciences, Valdosta State University
Proposal Title	Developing New Open Educational Resources for Resources, Society and Environment Class.
Course Names, Course Numbers and Semesters Offered	Geography 1125: Resources, Society and Environment, Summer, Spring, Fall 2017 (every semester). It is our university's equivalent of "Introductory to Environmental Geoscience" course, just with a different name. Not only is this course listed in the university's core curriculum, but it is also listed as one of the top 100 Undergraduate Courses at USG.

Final Semester of Instruction	Spring 2018				
Average Number of Students Per Course Section	30	Number of Course Sections Affected by Implementation in Academic Year	5	Total Number of Students Affected by Implementation in Academic Year	150
Award Category (pick one)	<input checked="" type="checkbox"/> No-or-Low-Cost-to-Students Learning Materials <input type="checkbox"/> OpenStax Textbooks <input type="checkbox"/> Interactive Course-Authoring Tools and Software <input type="checkbox"/> Specific Top 100 Undergraduate Courses				
List the original course materials for students (including title, whether optional or required, & cost for each item)	Environmental Science for a Changing World. 2015, 2nd Edition, by Susan Karr, Jeneen Interlandi and Anne Houtman: W. H. Freeman and Company, New York. (required). Bookstore cost: \$166.90.				
Requested Amount of Funding	\$10,800				
Original Per Student Cost	\$166.90				
Post-Proposal Projected Per Student Cost	\$0				

Projected Per Student Savings	\$166.90
Projected Total Annual Student Savings	\$25,035
Creation and Hosting Platforms Used	LibGuides, hosted by Valdosta State University's Library, free to everyone online, and can also be accessed through GALILEO Open Learning Materials.

NARRATIVE

1.1 PROJECT GOALS

Our goal is to offer low-cost, high quality, and interesting learning materials for students in the introductory to environmental science course (GEOG 1125 – Resources, Society and Environment) at Valdosta State University (VSU). Since VSU only has an Environmental Science minor, all Environmental Science related courses falls under the umbrella of Geography – hence the GEOG course prefix. We will be switching from the current textbook to a combination of our new supplementary materials and two textbooks: Sustainability: A Comprehensive Foundation by Tom Theis and Jonathan Tomkin and Introduction to Environmental Science by Caralyn Zehnder, Kalina Manoylov, Samuel Mutiti, Christine Mutiti, Allison VandeVoort, and Donna Bennett (2016). The books will be adopted for all sections of this course which generally averages at five per year. In addition, the projected annual savings for students would be about \$25,035.

The goal is to create additional no-cost Open Educational Resources (OERs) to help supplement lecture and textbook material. While the two textbooks are excellent, the supplemental material, and especially the exercises and exams which are essential for mastery of the subject, are less ideal for our students.

By offering this new open access textbook and OERs at no cost to the students, we hope to improve both course enrollment and DFW (drop, fail, and withdrawal) rates.

The effectiveness of this transformation will be measured by comparing student's course success rates between the courses taught using the new OERs and those taught using the traditional material, as well as through student feedback on surveys conducted periodically throughout each semester in which this course is taught.

1.2 STATEMENT OF TRANSFORMATION

Students enrolled in GEOG 1125 at Valdosta State University will be the main group affected by this transformation considering they are gaining access to a free open access textbook and educational resources. Many of our students come from disadvantaged economic backgrounds that can make the purchase of expensive textbooks and other resource materials difficult and burdensome. It is not uncommon that students have to wait on financial aid payouts, and are not able to purchase their textbooks until the third week of classes—sometimes not even purchase the books at all. Providing these free resources will reduce the financial burden for each student who enrolls in this course and allow them access to course materials much sooner. In addition, since the textbook will be in PDF form, it can be downloaded to a laptop, tablet, phone, or school computer, enabling students to study in spare moments and in places where it would be awkward to carry a large textbook. By offering these free and mobile resources, we hope that students will better meet the learning objectives for this course along with a higher course completion rate.

For this textbook transformation, we will be converting from the current purchased textbook to the two open-sourced textbooks that are available on OpenStax and GALILEO. This course is VSU's equivalent of "Introductory to Environmental Geoscience" course, just with a different name. Since the course is listed in both the top 100 Undergraduate Courses and our university core curriculum, it is a popular course and the books should be excellent choices. The text offers students many examples from various fields of environmental science, which helps students make the connection between what they are studying in theories to what they are doing in their life. Additionally, the author gives very clear explanations of the concepts and does not distract students with side issues. We will add more open access resources from numerous online sources as well as material that we produce. In turn, this will give the students a broader perspective, allowing them to better meet the learning objectives for this course.

We believe that the implementation of the OERs and conversion from purchased textbooks will attract more students and increase enrollment for this course. As a freshman-level science course, it has the potential of reaching wide audiences and attracting more students to our major.

1.3 TRANSFORMATION ACTION PLAN

Our action plan will include three parts:

- 1.) Identification and selection or creation of materials
- 2.) Adoption and course redesign
- 3.) Implementation and evaluation

Identification and selection or creation of materials:

We have chosen to adopt the two open-source textbooks and are in the process of identifying and locating more online resources at no-cost, which can be used as supplemental materials for instruction in this course. These resources include material found on YouTube, GALILEO, and MERLOT. In addition, more supplementary assignments, quizzes, and quizzes will be created by Dr. Lu, and the graphics will be designed and arranged by Ms. Taylor.

Adoption and course redesign:

During the Summer 2017, we will be working to design modules on the university library website LibGuides and add corresponding links in the D2L, which correlate with each chapter in the two textbooks. Each module will include a study guide, discussion questions, additional problems for extra practice, quizzes, flash cards for checking knowledge of concepts, PowerPoint slides (if used for lectures), and links or copies of the chosen education resources, which may include demonstration videos and video sample problems.

VSU administers all online courses through D2L learning management systems. Not only will students have access to these resources through the course in D2L, but they will also be available for public access through LibGuides, which is our open-source institutional repository. Therefore, our students will have full access to these materials anywhere they are able to access the internet.

Dr. Lu has been listed as the instructor of the course in Fall 2017 and beyond. It will be her role to lead this project as subject matter expert and instructional designer. In addition, she will be responsible for creating supplemental problem sets. Ms. Taylor will be responsible for putting all materials on LibGuides and D2L. Ms. Taylor's web service, graphic design experience, and business degrees will help make the course materials more marketable and attractive to the student population. Alongside with design, Ms. Taylor will be responsible for conducting thorough copyright research, creating / editing accessible materials, and confirming the accessibility of existing materials. She will also be helping to organize the materials in LibGuides on our university library website. In addition, since web links can break often in LibGuides, Ms. Taylor will closely monitor the links and provide updates as needed for the project duration and after the project is completed.

Implementation and evaluation:

We plan to implement the new outline for the course in Fall 2017. During this semester, we will be studying which resources students utilize most often through the “Completion Summary” report for each resource. 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 Fall semester, data will be compiled to determine the students’ discernment along with the DFW rates for the course. Any suggestions or changes to the modules in D2L and LibGuides will be made at this time. The updated materials will be used during Spring 2018 and future courses, with continuous evaluation throughout the semesters. More information on specific evaluations is discussed in the next section of this application.

1.4 QUANTITATIVE AND QUALITATIVE MEASURES

Both quantitative and qualitative measures will be applied to determine the impact of this transformation on student success throughout the length of this project.

Quantitative Measures:

Three different measures will be examined throughout the project:

- 1.) DFW rates / Course enrollment data
- 2.) Completion rates.

DFW rate:

Through our department head, we will have access to the DFW rates for all students enrolled in GEOG 1125 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 purchased textbook. We will also be able to see enrollment trends while using the new materials.

Completion rates:

The quantitative measure employed is to investigate the change of completion rates. We have access to the completion rates for the past years through our department head. At the end of each semester, we will be accessing these reports to measure if the completion rate has improved by using these no-cost materials.

Qualitative Measures:

We will be examining two different qualitative measures: 1.) Student feedback through surveys and 2.) Completion summary reports through D2L.

Student feedback through surveys:

Surveys will be randomly distributed throughout each semester to students in order to gauge their perception of how helpful the textbook and the other OERs available to them appear to be. These surveys will help us to measure student interest as well as provide us with information on other resources the students may have found when they were studying for this course. In order to not contaminate this measure, students will not be aware that we are using this data since we are not tying them to grades.

Completion Summary reports:

One of the many tools 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, these reports will be examined in order to determine which resources the students utilize the most. In order to be objective, we will not notify students that we are using the Completion Summary Report tool, so students will not be aware of that. By 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.

1.5 TIMELINE

June 2017: Team members attend the kickoff meeting, as well as identify and locate no-cost, online additional course materials.

July 2017: Design modules in LibGuides and create links to them in D2L.

July - August 2017: Create new supplemental materials, including flashcards, discussion questions, videos, etc. In addition, during this time frame, copyright clearance will take place for materials that are not developed in-house, and Ms. Taylor will be in charge of this.

Summer 2017: Salary/release time for Dr. Lu.

Fall 2017: Implement new course materials, collect data on student achievement begins. Submit status report at the end of the semester.

December 2017 - January 2018: Compile data from Fall 2017 classes and revise course materials based on student feedback. Upload revised course materials to LibGuides, and create web links to these materials in D2L.

February - May 2018: Continue implementation with revisions.

May 2018: Co-investigators compile data and revise course materials based on student feedback. Submit final report at the end of the semester.

1.6 BUDGET

Dr. Jia Lu - \$5,000 for salary / release time in Summer 2017.

Ms. Jessica Taylor - \$5000 for salary / release time.

Travel for two team members to attend grant kick-off meeting - \$800.

1.7 SUSTAINABILITY PLAN

Our goal for this project is to create a course model, including corresponding modules for each section of the textbook. All materials will be available prior to the beginning of the Fall semester through LibGuides and D2L. The course and modules will be made available to faculty at all other USG institutions through LibGuides. Dr. Lu will be responsible for maintaining the course materials and Ms. Taylor will be responsible for maintaining the LibGuides websites for the foreseeable future, including updating web links which could change from time to time. Dr. Lu will continue to develop new assignments even after this ALG project is finished. Overall, all of the resources that we develop will be very useful and will save our students a lot of money.

1.8 REFERENCES & ATTACHMENTS

This could include any citations, references, your administrative letter(s) of support, etc. Letters 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.

Syllabus

Resources, Society, and Environment - GEOG 1125 Fall

Time and Place: BlazeVIEW Online

Instructor: Dr. Jia Lu; Office: NH 2110
Email: jl@valdosta.edu (please include your name and class name in the email, and expect reasonable response time due to instructor's multiple classes and other job responsibilities. Email will be responded on Mondays to Fridays.)

Office Hours: By Email **Prerequisite:** None

Note: **This course satisfies Environmental Studies minor and Geosciences major.**

Course Overview:

The goal of this course is to introduce students to environmental science and its impact on society, as well as to give background information needed to critically think about current environmental issues. Topics will include natural resources, pollution, conservation, a review of environmental policy, and resource management theories. The course will include discussions of current environmental and conservation challenges, many of which with no clear-cut solutions. Students should be willing and able to voice and defend their opinions on these subjects as well as be respectful of the opinions of others.

Learning Outcomes:

In order to achieve the specific outcomes of the course, students in this course will be able to:

1. Identify the basic concepts and characteristics of environmental sciences.
2. Identify the conflicting social, economic, and biological needs of humanity and other living organisms.
3. Identify various roles of organisms in their environment, and discuss the interrelatedness of living organisms, environmental processes, and human cultural and societal needs.
4. Assimilate and critically think about biological and scientific processes/theories.
5. Analyze, assimilate, and critically think about environmental policy and legislation.
6. Evaluate various personal and corporate actions that can mitigate or reverse the negative impact of human activities on the biosphere; explain various tradeoffs related to sustainable stewardship of the earth's biodiversity and its resources.

Required Textbooks: (Free for downloading online. Yes, you need to read them!)

Theis, T. and Tomkin, J., Editors. 2012. Sustainability: A Comprehensive Foundation.
<http://cnx.org/donate/download/1741effd-9cda-4b2b-a91e-003e6f587263%4043.5/pdf>

Zehnder, C.; Manoylov, K.; Mutiti, S.; Mutiti, C.; VandeVoort, A.; and Bennett, D. 2016. Introduction to Environmental Science. <http://libguides.gcsu.edu/ENSC1000>

Class Attendance and Participation:

The class is conducted on line in Blazeview. You are required to login every class day to read all contents in the learning modules, and complete discussion questions (DQ) and quizzes by the due dates. On-line attendance is required for the class sessions listed on the syllabus. You are expected to attend classes, just as you would be expected to show up for a job every day you are scheduled to work. This is in line with VSU requirements. However, you do not have to login at a specific time every day, as long as you finish your textbook and online readings, as well as other online module requirements, you can do it at whatever time of the day that convenient for you. I will count your completion of DQs, replies to other students' DQs, and quizzes as your attendance of that day. Students who completed all online DQs, replies, and quizzes will receive a 20 bonus points at the end of semester. My experience confirms that students who attend regularly almost without exception do better on exams than those with irregular attendance. Online PowerPoint materials and activities will not necessarily duplicate material covered in the textbook.

In addition, please note the following VSU policy:

"A student who misses 20% of the scheduled classes of a course will be subject to receiving a failing grade [F] in the course." (Undergraduate Catalog 2009-2010, p. 90)

Academic Dishonesty and Plagiarism:

The VSU Student Handbook states among other things:

“Plagiarism is prohibited. Themes, essays, term papers, tests, and other similar requirements must be the work of the student submitting them. When direct quotations are used, they must be indicated, and when the ideas of another are incorporated in the paper they must be appropriately acknowledged.” (p. 59)

Anyone found guilty of academic dishonesty will receive an “F” in this course. In addition, current VSU policy dictates that all instances be reported to the administration for disciplinary action.

Evaluation Procedures:

The course has a total of 500 points, divided as follows:

Exam (Total: 200 points; 1 final exam)	40% of Grade
Quizzes (Total: 200 points; 11 quizzes, drop the lowest score)	40% of Grade
Online Discussions (Total: 100 points; 11 questions, drop the lowest score)	20% of Grade

Exam will be based on material covered in the the textbook and PDF PowerPoint slides in Blazeview. Be sure that you examine and understand the concepts, ideas, and terms for each chapter; some of these will be discussed in slides, but others will be in the textbook only. Review questions for the final are provided under course content. Exams will consist of multiple choice and/or true-false questions, with each question weighted at two points. The final exam will last 100 minutes and include 100 questions totaling 200 points, with each question weighted at two points. Optional videos in each unit in BlazeVIEW are optional, great for learning, but not required and not graded.

Quizzes will be based on readings and analysis for each chapter in the textbook. There will be 11 quizzes in total. Each quiz includes 20 questions with each question weighted at one point. You have 20 minutes for each quiz. Please save each of your answers when taking quizzes or exam to avoid any loss of points due to computer crash or internet problems. You can either drop one quiz with your lowest score or skip a quiz at your own choice.

Discussion questions (DQ) include 11 questions (DQ1-DQ11) that you are required to answer. Each question counts as 10 points. Beside your own post, you also need to reply to at least one classmate to get the full 10 points. Some of the questions are controversy, and there are no right and wrong answers. However, when you state your opinion, please be logical, rational, and respectful to others' opinions, and please give supporting evidence to your arguments as well. Please cite your references if you have any. Please make sure your answer is substantial, which normally means it includes at least 200 words, and it clearly demonstrates your understanding of the concepts, and how to apply the concepts to a real world case. Please post your answers before 11:59pm/EST weekdays (or 10pm/EST for Fridays), depending on which days of the week the due dates fall. Your post will also count as your attendance for that online session. You can either drop a DQ with your lowest score or skip a DQ with your own choice. Your total DQ score will be entered in the grade book after you finish your DQ 11.

Extra Credits: 20 bonus points will be given to students attend all online classes (completed all required online quizzes, discussion questions and replies). NO other extra credits will be given, so please do NOT ask for them.

Letter grades will be given according to the following percentage ranges:

A = 90 - 100%
B = 80 - 89%
C = 70 - 79%
D = 60 - 69%
F = < 60%

Letter grades on each of exam and quizzes will approximate the percentage ranges indicated above; however, they may be adjusted or curved to reflect class performance. Average score in this class is normally around 75% (C). If you want an A, please be among the top 15% of the class. There is no easy A in this class.

An Example of Grade Determination

- Jane Smart scores 10 points in each of the 11 DQs, and she got 5 points for the last DQ (dropped as her lowest score). Her actual points for DQs will be: $[(10 \times 10) + 5] - 5 = 100$
- She scores perfects in 11 quizzes and got 19 out of 20 questions correct for Quiz 11. Thus, she drops her lowest score - 19. Her actual points for quizzes will be: $[(20 \times 10) + 19] - 19 = 200$
- Jane scores 85% in the exam (Final Exam). Her actual points are 170.
- Jane's total course points will be:
Quizzes: 200

Exam (Final Exam):	170
Discussion Questions (DQ):	100
Attendance Bonus:	20 (for completed all online classes, quizzes, DQs and final on time)
Total:	490

Determination of Jane's grade: $(490 / 500) \times 100 = 98\%$.

Check the letter grade table of the syllabus, 98% fits in A range, so Jane's final grade for the class comes to A.

Exam Policy: Exams, quizzes, and discussion questions should be completed at the scheduled time. NO early final exam is allowed. Exam must be taken within the time-line. Make-up exams, quizzes, and assignments will not be given unless there is an evidence that the absence was the result of a conflict with a scheduled University sports (in such case the instructor must be notified in advance), or *hospitalization* that can be verified with a doctor's excuse note, or funeral announcement with you as one of the survivors. "My computer does not work," "There is a power outage," and "I have a project due today," are not legitimate excuses. If you miss a quiz, or an exam due to an excused absence, contact the instructor within 2 days and arrangement will be made for a makeup assignment; otherwise, no make-ups in any case. The instructor will also be happy to explain exercises or concepts that might present some difficulties to you if your absence is excused.

In order to prepare for exam and quizzes, please take the following steps:

- 1) Get the PDF PowerPoint from BlazeVIEW as a guideline and read the relevant reading in the textbooks.
- 2) Email the instructor if you still have difficulty understanding the concepts and explanations in the reading, or have questions after you have done 1).

This is an online course, so you have to be diligent and self-disciplined. Please be smart in utilizing your time. The way to improve your grade is to do online readings, and spend at least 12 hours every week reading PDF slides and required textbook content, completing DQs and Quizzes, as well as discussing course content with your classmates.

There is a great website for how to succeed in class: <http://www.studyqs.net/>, including Memorizing, Studying in groups, Ten tips for terrific test taking, Multiple choice tests, True/false tests, and Collaborative/cooperative learning. "Teachers open the door; you enter by yourself (Chinese proverb)." Hope you all succeed in this class!

Important Computer Requirement:

This is an online class, so internet connection is required during the course period either at home or on campus. Please see the link for computer requirement and other issues with BlazeVIEW:

<http://www.valdosta.edu/academics/elearning/main/current-students/student-resources/BlazeVIEW-d2l.php>.

Cable or DSL connection is strongly recommended at home. *Please do **NOT** use Wireless, dial-up services and tablets to take quizzes and exam.* If you do not follow this guideline, you take your own risk, and there will be NO makeups. All required quizzes and final exam are timed, so please use your time wisely. Please make sure you have Adobe Reader; if not, you can download from www.adobe.com. Please use VSU emails to contact the instructor. You are encouraged to use student discussion area to contact your fellow students about course questions, except during the final exam or quizzes. Please refresh your browser often to see new update in BlazeVIEW. If you have any problems with BlazeVIEW, please call helpdesk at 855-772-0423 (24/7 services) and/or IT at 229-245-4357 (weekday 8am-5pm) right away for help. *If you do not call them right away, you take your own risk, and there will be NO assistance from the instructor.* Please do NOT contact the instructor, since we do not have expertise in BlazeVIEW issues.

Academic Support and Tutoring:

There is a group tutoring opportunities available on campus for this class. You are encouraged to register and contact Academic Advisor and Coordinator Mr. Terence Sullivan at the Student Success Center (tasullivan@valdosta.edu; Tel: 229-245-4329). Tutor is free for students. For other academic support, please see <http://www.valdosta.edu/colleges/business/deans-office/course-orientation/persresources.php> and <http://www.valdosta.edu/colleges/business/deans-office/course-orientation/techresources.php>.

Disabilities: Students with disabilities who are experiencing barriers in this course may contact the Access Office for assistance in determining and implementing reasonable accommodations. The Access Office is located in Farbar Hall, 229-245-2498 (V), 229-375-5871 (VP) and 229-219-1348 (TTY). For more information, visit Access Office or email: access@valdosta.edu. After students have registered with the Access Office, they are required to discuss their needs with the instructor within 2 days. BlazeVIEW information on accessibility: <http://www.desire2learn.com/products/accessibility/resources/>.

Title IX Statement: VSU is committed to creating a diverse and inclusive work and learning environment free from discrimination and harassment. VSU is dedicated to creating an environment where all campus community members feel valued, respected, and included. VSU prohibits discrimination on the basis of race, color, ethnicity, national origin, sex (including pregnancy status, sexual harassment and sexual violence), sexual orientation, gender identity, religion, age, national origin, disability, genetic information, or veteran status, in the University's programs and activities as required by applicable

laws and regulations such as Title IX. The individual designated with responsibility for coordination of compliance efforts and receipt of inquiries concerning nondiscrimination policies is the University's Title IX Coordinator: Maggie Viverette, Director of the Office of Social Equity, titleix@valosta.edu, 1208 N. Patterson St., Valdosta, GA 31608, 229-333-5463.

Tentative Course Schedule (Subject to changes):

<u>Date:</u>	<u>Reading/Assignment Topic:</u>	<u>Textbook Chapter #</u>	<u>BlazeVIEW Unit</u>
August			
14/15	BlazeVIEW Introduction	N/A	Modules 1-3*
16/17	Introduction to Sustainability	Theis, 1; Zehnder, 1	Module 4, Unit 1
21/22	Introduction to Sustainability (Self-intro DQ 1)**	Theis, 1; Zehnder, 1	Unit 1
23/24	Introduction to Sustainability (Quiz 1)**	Theis, 1; Zehnder, 1	Unit 1
28/29	Science Literacy (DQ 2)	Zehnder, 1	Unit 2
30/31	Science Literacy (Quiz 2)	Zehnder, 1	Unit 2
September			
4/5	Labor Day	☺	
6/7	Population Ecology & Human Populations	Zehnder, 2 & 3	Unit 3
11/12	Population Ecology & Human Populations (DQ 3)	Zehnder, 2 & 3	Unit 3
13/14	Population Ecology & Human Populations (Quiz 3)	Zehnder, 2 & 3	Unit 3
18/19	Environmental & Resource Economics (DQ 4)	Theis, 6	Unit 4
20/21	Environmental & Resource Economics (Quiz 4)	Theis, 6	Unit 4
25/26	Biosphere and Biodiversity (DQ 5)	Theis, 4	Unit 5
27/28	Biosphere and Biodiversity (Quiz 5)	Theis, 4	Unit 5
October			
2/3	Water Pollution (DQ 6)	Zehnder, 8	Unit 6
4/5	Water Pollution (Quiz 6)	Zehnder, 8	Unit 6
9/10	Fall Break	☺	
11/12	Air Pollution	Zehnder, 8	Unit 7
16/17	Air Pollution (DQ 7)	Zehnder, 8	Unit 7
18/19	Air Pollution (Quiz 7)	Zehnder, 8	Unit 7
23/24	Non-renewable Energy (DQ 8)	Zehnder, 4	Unit 8
25/26	Non-renewable Energy (Quiz 8)	Zehnder, 4	Unit 8
30/31	Nuclear Power (DQ 9)	Zehnder, 4	Unit 9
November			
1/2	Nuclear Power (Quiz 9)	Zehnder, 4	Unit 9
6/7	Other Alternative Energy (DQ 10)	Zehnder, 5	Unit 10
8/9	Other Alternative Energy (Quiz 10)	Zehnder, 5	Unit 10
13/14	Environmental Policy (DQ 11)	Theis, 2	Unit 11
15/16	Environmental Policy (Quiz 11)	Theis, 2	Unit 11
20-30	Review (Review questions for final exam under Module 4 in BlazeVIEW)		
December			
4	Review (Review questions for final exam under Module 4 in BlazeVIEW)		
5/6	Final Exam (Tuesday-Wednesday, 1am-11:59pm/EST, online)		

* Modules are the headlines below Table of Content bar under Content in Blazeview:

1. Syllabus, 2. Student Resources, 3. Start Here, 4. Units (class materials).

** 11:59pm/EST cutoff time on due dates for each assignment (Quiz and DQ) on Mondays to Thursdays

Final Report

Affordable Learning Georgia Textbook Transformation Grants Final Report

Date: 5.16.2018

Grant Number: 330

Institution Name(s): Valdosta State University

Team Members (Name, Title, Department, Institutions if different, and email address for each): Dr. Jia Lu, Associate Professor of Geography; jl@valdosta.edu; Jessica Taylor, Webmaster, jnkimsey@valdosta.edu, Department of Physics, Astronomy & Geography, Valdosta State University

Project Lead: Jia Lu

Course Name(s) and Course Numbers: Resources, Society and Environment GEOG 1125

Semester Project Began: Summer 2017

Semester(s) of Implementation: Fall 2017 in-classroom implementation and Spring 2018 revision of the course materials

Average Number of Students Per Course Section: 26-30

Number of Course Sections Affected by Implementation: 2

Total Number of Students Affected by Implementation: 51 students

1. Narrative

A. Describe the key outcomes, whether positive, negative, or interesting, of your project.

Include:

The price of a textbook used in this course kept increasing in the past years. When the textbook cost \$166.90 in 2016, many of the students did not purchase a copy, and their class performance decreased compared to previous years. Thus, we decided to adopt open source textbooks. Lu and Taylor reviewed no-cost textbooks in the summer of 2017 and selected two appropriate textbooks. The two books each has advantages so we decided to use both to complement each other in the course. Shortly after that, we developed other supporting materials to complement the textbooks. In addition, Dr. Lu constructed this course based on the online course national standard set by Quality Matters. Dr. Lu applied backward design to define course-learning outcomes and then designed all modules to target those outcomes. Dr. Lu developed learning outcomes for each module, identified existing textbook materials, and developed new materials to support those outcomes.

Dr. Lu designed each course module in the following steps: identifying pre-class readings (using the no-cost textbook and adding supplementary readings and videos), identifying a list of concepts and developing PowerPoint materials to help students to engage effectively with the readings, developing testing materials to verify students' understanding of the concepts, and creating a series of discussion questions to ask students to apply the concepts to practice their critical thinking skills.

Moreover, the two selected open-source textbooks have some weaknesses. Theirs' book is lengthy, and the figures and graphics are not as attractive as the commercial textbook we used before. Zehnder's book does not cover some of topics we would like to discuss. None of them has companion PowerPoint slides or discussion questions like the commercial textbook we used before. All of the above made it harder for our students to grasp the concepts and knowledge of environmental science. In order to address this, Lu and Taylor created and/or added additional supporting materials, such as PowerPoints, lists of concepts, flash cards, practice quizzes and videos.

Lu and Taylor met regularly through the summer of 2017 to develop the course materials. In the fall of 2017, depending on how students responded to the modules, Dr. Lu made notes of adjustments needed to guide future revisions of the course. In the spring of 2018, Dr. Lu made a revision of the course materials based on her notes and the student comments and performance in the fall of 2017.

Our students were a mix of freshmen to senior students. In general, the freshmen spent more time reading and analyzing the texts than the seniors did. All of them found the PowerPoints helpful in guiding them through the textbook reading.

The free open-source textbooks and the backward course design made it easier for students to read the books, understand the concepts, and succeed in this course. This was evident from the student performance in the fall of 2017.

B. Describe lessons learned, including any things you would do differently next time.

The subject matter of environmental science changes very quickly. Recent changes caused by new technology include electric cars, new methods in green agriculture, new policies in urban sustainability initiatives, etc. Therefore, our textbooks are often significantly out of date by the time they go to press. The books we selected for this class are good books; however, additional supplementary readings have to be constantly added into our course for current and future usage.

2. Quotes

In evaluating their experience with no-cost course materials, students made very positive comments. Here are some examples from their course evaluations at the end of the semester in the fall of 2017:

- “perfect course, powerpoints are very helpful.”
- “very well laid out plan, very organized, simple and efficient set up to learn.”
- “The content was clearly laid out and there wasn't confusion for what was due and when.”
- “It was a pretty fun class considering it was fully online. I believe the instructor had something to do with that.”
- “Being online made it easy to access at my convenience. The teacher was precise on what was expected in the course.”
- “Dr. Lu genuinely wants us to succeed, and goes out of her way to make sure it happens. Not to mention Dr. Lu is actually excited about the class she teaches, and it's an online class so if I can feel her excitement having never met her then she's doing something right.”
- “We get several reminders about when work is due before the due date approaches...Dr. Lu goes out of her way to make sure we understand an assignment and is very organized with the course work that she assigns.”
- “(Instructor) responding to emails promptly and having clear instructions in place.”
- “Learning about different things to do with energy conservation was cool.”
- “Discussions truly helped improve my understanding of the material.”
- “(The best feature about the course is the) organization.”
- “Very detailed.”
- “The best feature of this course was the online aspect. I love online classes and having a science without a lab online for my core was a great opportunity.”
- “Nothing (needs to change for the course), this course was good.”

- “Nothing (needs to change for the course). Keep doing what you're doing.”

Overall, students loved the newly developed course materials, including the PowerPoints and discussion questions. They also loved the backward course design because it was very organized and clearly laid out. Finally, they loved the course because it was fun and they can feel the enthusiasm of Dr. Lu without having met her in the classroom.

3. Quantitative and Qualitative Measures

3a. Uniform Measurements Questions

Student Opinion of Materials

Was the overall student opinion about the materials used in the course positive, neutral, or negative?

Total number of students affected in this project: 51

- Positive: 70 % of number of respondents
- Neutral: 20 % of number of respondents
- Negative: 10 % of number of respondents

During the semester of implementation (Fall of 2017), some students mentioned in their communication with me that the open source textbooks saved them money (\$166 a person) for not using the commercial textbook and made it easier to access the readings online, no matter where they were. They also enjoyed the supplemental readings, flash cards, and videos. They felt the newly developed discussion questions truly helped improve their understanding of the material.

Student Learning Outcomes and Grades

Was the overall comparative impact on student performance in terms of learning outcomes and grades in the semester(s) of implementation over previous semesters positive, neutral, or negative?

Student outcomes should be described in detail in Section 3b.

Choose One:

- Positive: Higher performance outcomes measured over previous semester(s)
- Neutral: Same performance outcomes over previous semester(s)
- Negative: Lower performance outcomes over previous semester(s)

Student Drop/Fail/Withdraw (DFW) Rates

Was the overall comparative impact on Drop/Fail/Withdraw (DFW) rates in the semester(s) of implementation over previous semesters positive, neutral, or negative?

Drop/Fail/Withdraw Rate:

Drop/Fail/Withdraw Rate:

Depending on what you and your institution can measure, this may also be known as a drop/failure rate or a withdraw/failure rate.

22.8 % of students, out of a total 51 students affected, dropped/failed/withdrew from the course in the final semester of implementation.

We report the following outcome:

- X Positive: This is a lower percentage of students with D/F/W than previous semester(s)
- Neutral: This is the same percentage of students with D/F/W than previous semester(s)
- Negative: This is a higher percentage of students with D/F/W than previous semester(s)

Previous Semester: Fall 2016 saw a class of 23 students, a mix of first year, sophomores, juniors and seniors. 6 out of 23 (26%) students withdrew/dropped from the course in the semester prior to implementation and 2 out of 23 (8.6%) students failed in the course prior to implementation. In total, 8 out of 23 (34.6%) students dropped/failed/withdrew from the course.

Implementation Semester: Fall 2017 class had a total of 51 students in two sections, a mix of first year, sophomores, juniors and seniors. 8 out of 51 (15%) students withdrew/dropped from the course in the semester during the implementation and 4 out of 51 (7.8%) students failed from the course in the final semester of implementation. In total, 12 out of 51 (22.8%) students dropped/failed/withdrew from the course. Overall, this showed a statistically significant improvement from the previous semester when the course was taught.

3b. Narrative

We used four measures of impact on students: i. DFW rates, ii. retention rates, iii. statistics measuring success in the whole course, and iv. student overall evaluation of the course.

i. DFW Rates. Our classes saw a reduction in withdrawal rates during the implementation semester. The DFW rates dropped from 34.6% to 22.8% after the implementation of our project.

ii. Retention Rates: In our preimplantation semester, 65.4% students completed the course. During the implementation phase, 77.2% students completed the course.

iii. Statistics measuring success in the whole course:

Grades Pre-Implementation (Fall 2016 course):
1125A: Maximum: 96.4 %; Average: 80.65 %.

Grades after implementation (Fall 2017 course):
1125A: Maximum: 97.6 %; Average: 81.33 %.

1125B: Maximum: 96.4 %; Average: 81.05 %.

Overall, in both sections of the course, students had a higher average score and equal or higher maximum score. Thus, the students were more successful in the implementation semester than in the pre-implementation semester.

iv. Student overall evaluation of the course:

Pre-Implementation - Fall 2016 Course

- Overall Score: 4.26

Implementation Semester - Fall 2017 Course

- Section A Overall Score: 4.32
- Section B Overall Score: 4.57

Overall, in both sections of the course, students gave higher overall evaluation scores in the implementation semester than in the pre-implementation semester.

4. Sustainability Plan

All course materials collected and developed were uploaded to D2L at the beginning of fall of 2017 for students to use. The materials developed and revised by us during the grant period have been sent to the Vtext Institutional Repository and they are in the process of being converted into LibGuides for the course once VSU finishes updating to a new server. These guides are freely available to any faculty member at the other institutions. We will review all modules at the beginning of future semesters, monitor student feedback during the semesters, and add more materials that students enjoy. Ms. Taylor will continue to organize the materials in LibGuides on our university library website. In addition, since web links can break often in LibGuides, Ms. Taylor will continue to monitor the links and provide updates as needed for the project. In summary, we plan to maintain and expand all of the course materials and the LibGuides in the future.

5. Future Plans

Dr. Lu plans to continue to add more open-source supplemental materials to the course (including homework assignments, videos, and practice quizzes) in order to give students more practice to work out problems involving a wider range of concepts. Dr. Lu also plans to add more explanatory material. Ms. Taylor will continue to convert the material into LibGuides and upload them to the Vtext Institutional Repository. In addition, we plan to survey students in the future to find out what other online open-source resources they find to be useful. We will then provide links to make this material easily accessible to students who may not be aware of its existence.

Dr. Lu plans to explore open-source materials for other courses she teaches. If there are appropriate free or low-cost textbooks, she will adopt them in other urban planning and geography classes, including urban community planning and world regional geography.

Dr. Lu also plans to share her experience with the open-source textbook and no-cost course materials, and discusses the backward course design approach in the 2018 UCGIS conference, as

well as 2018 Annual Conferences of Applied Geography and 2019 Annual Conferences of the Association of American Geographers.

6. Description of Photograph

- Dr. Jia Lu, Associate Professor of Geography, instructors of Resources, Society and Environment, and Ms. Jessica Taylor, Webmaster, at Valdosta State University.