Affordable Learning Georgia Textbook Transformation Grants

Final Report

To submit your Final Report, go to the [Final Report submission page](http://affordablelearninggeorgia.org/site/final_report_submission) on the ALG website: http://affordablelearninggeorgia.org/site/final\_report\_submission

The final report submission form allows up to five files:

* This completed narrative document (required)
* Syllabus or syllabi (required)

*If multiple files, compress into one .zip folder*

* Qualitative/Quantitative Measures data files (required)

*If multiple files, compress into one .zip folder*

* Photo of your team or a class of your students for future ALG promotions (optional)
* Invoice for the second half of the grant’s award amount (optional)

Follow the instructions on the webpage for uploading your documents. Based on receipt of this report, ALG will process the final payment for your grant. ALG will follow up in the future with post-project grantee surveys and may also request your participation in a publication, presentation, or other event.

# General Information

**Date: May 6, 2021**

**Grant Round: 16**

**Grant Number: #519**

**Institution Name(s): Kennesaw State University**

**Project Lead: Rebecca H. Rutherfoord**

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

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**Course Name(s) and Course Numbers:**

**IT 4603 – Introduction to FinTech**

**IT 4773 – Machine Learning for Enterprise Applications**

**IT 4883 – Infrastructure Defense**

**IT 4863 – Web and Mobile Application Security**

**Semester Project Began: Spring 2020**

**Final Semester of Implementation: Spring 2021**

**Total Number of Students Affected During Project: 320**

# Narrative

* 1. *Describe the key outcomes, whether positive, negative, or interesting, of your project. Include:*
* *Summary of your transformation experience, including challenges and accomplishments*
* *Transformative impacts on your instruction*
* *Transformative impacts on your students and their performance*
  1. *Describe lessons learned, including any things you would do differently next time.*

The objectives/goals of the proposed project are as follows.

* Make the BSIT/BASIT programs more affordable by eliminating the textbooks used in four IT courses. By doing so, the BSIT/BASIT programs can better support the lowering of costs for students at KSU.
* Develop free, up-to-date and well-designed learning material for the four proposed BSIT/BASIT courses.
* Teach the proposed courses using the developed learning material and validate those material offers equal or better learning effectiveness that textbooks do.
* Develop a sustainability plan to ensure the no-cost learning material will be continuously maintained and used in future course offerings.

These various objectives/goals of the proposal were met through the development of four BSIT/BASIT elective courses. Faculty completed their individual courses on time. In addition, during early fall 2021 the courses will be evaluated for our Kennesaw State University ADA compliance. The courses were electives for concentrations in the BSIT program. IT 4603 – Intro to FinTech in IT and IT 4773 Machine Learning for Enterprise Applications are new courses for the program/concentrations. IT 4883 – Infrastructure Defense has been taught for some time, but, this is the first time it has been redeveloped using OER materials. IT 4863 is a combination of two old existing courses into one using OER materials.

* **2020/21 Enrollment Data**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Course Name** | **Course offering frequency** | **Sections to be offered** | **Avg. enrollment per section** | **Total enrollment** | **Textbook cost** | **Total Saving** |
| IT 4603 | Spring/fall | 2 | 30 | 60 | $67.85 | **$4071.00** |
| IT 4773 | Spring/fall | 2 | 30 | 60 | $73.79 | **$4427.40** |
| IT 4883 | Each semester | 4 | 35 | 140 | $46.73 | **$6542.20** |
| IT 4863 | Spring/fall | 2 | 30 | 60 | $185.00 | **$11,100.00** |
| **Total** |  | **13** | **31.25 (avg)** | **320** | **$373.02** | **$26,140.60** |

The four courses were developed using OER products, with various links, articles, guides, etc., plus faculty developed content and power point slides. All materials were organized using modules in the course. Faculty developers created their content, found topic-related links, YouTubes, guides, etc., that were incorporated into each module. Faculty also created power point slides to accompany the content.

These four courses join many other courses developed using funding from previous ALG grants to complete our BSIT/BASIT degree programs as “Z” degrees. The courses are elective courses from two of the BSIT concentrations. The faculty developing the courses are all precious ALG grant recipients and so, were knowledgeable on how to create and use OER resources. There weren’t any difficulties reported from any of the faculty during the development of the courses.

Students have been the recipient of no-cost-to-students BSIT/BASIT courses for several year now. The overwhelming response from students have been positive with each set of new ALG courses that are developed. These four courses were also received favorably by the students.

# Quotes

*Provide three quotes from students evaluating their experience with the no-cost learning materials.*

From the IT 4603 course:

“The materials from this course were very helpful in learning the material in each module. Since I didn’t know anything about FinTech, the materials were very up-to-date so I felt I was getting good information in the course.”

From the IT 4773 course:

“I liked this course and didn’t mind not having a textbook. I believe I learned through the material in each module and was able to successfully finish the course.”

From the IT 4863 course:

“Since this course had a lot of lab assignments as part of the course, I think the material in the different modules gave me enough knowledge to successfully complete the labs.”

From the IT 4886 course:

“This is a very technical course with several security labs. There was one lab that I had difficulty with, but the instructor and the material in the course helped me understand the lab.”

# Quantitative and Qualitative Measures

## Uniform Measurements Questions

*The following are uniform questions asked to all grant teams. Please answer these to the best of your knowledge.*

**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: \_\_\_320\_\_\_\_\_\_\_

* Positive: \_100\_\_\_% of \_\_\_58\_\_\_\_\_ number of respondents
* Neutral: \_\_\_\_\_\_\_ % of \_\_\_\_\_\_\_\_ number of respondents
* Negative: \_\_\_\_\_\_\_ % of \_\_\_\_\_\_\_\_ number of respondents

**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)
* \_X\_ 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:**

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

\_\_\_\_5%\_\_\_% of students, out of a total \_\_\_\_320\_\_\_ students affected, dropped/failed/withdrew from the course in the final semester of implementation.

Choose One:

* \_\_\_ Positive: This is a lower percentage of students with D/F/W than previous semester(s)
* \_\_X\_ 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)

## Measures Narrative

*In this section, summarize the supporting impact data that you are submitting, including all quantitative and qualitative measures of impact on student success and experience. Include all measures as described in your proposal, along with any measures developed after the proposal submission.*

*[When submitting your final report, as noted above, you will also need to provide the separate file (or .zip with multiple files) of supporting data on the impact of your Textbook Transformation, such as surveys, analyzed data collected, etc.]*

* *Include measures such as:*
  + *Drop, fail, withdraw (DFW) delta rates*
  + *Course retention and completion rates*
  + *Average GPA*
  + *Pre-and post-transformation DFW comparison*
  + *Student success in learning objectives*
  + *Surveys, interviews, and other qualitative measures*
* *Indicate any co-factors that might have influenced the outcomes.*

**IT 4603 Introduction to FinTech**

## Students who complete this course successfully will be able to:

1. Describe the core and novel sources of FinTech data, how are they managed.
2. Compare critical technology strategies and foundational technologies in FinTech
3. Identify the differences between the most prominent blockchain structure.
4. Describe technologies underlying cryptocurrencies and blockchains.

Implement a blockchain, and how to write a “smart contract” in Python/Ethereum.

Survey Results: In an end of course survey students responded to the following questions:

“Did you learn the same amount without a textbook?”

66.67% said “definitely yes”

33.33% said “probably yes”

“Were the learning materials enough to meet the outcomes?”

100% said “yes”

**IT 4773 Machine Learning for Enterprise Applications**

The student will be able to:

1. explain the concepts of supervised and unsupervised learning
2. explain the concepts of how machine learning fits in the organization/enterprise and leads to competitive advantages.
3. Perform data analytics using supervised and unsupervised learning.
4. Evaluate the performance of machine learning models on data analysis.

Survey Results: In an end of course survey students responded to the following questions:

“Did you learn the same amount without a textbook?”

66.67% said “definitely yes”

33.33% said “probably yes”

“Were the learning materials enough to meet the outcomes?”

100% said “yes”

**IT 4884 – Infrastructure Defense**

Upon a successful completion of this course, a student should be able to:

1. Define the overall process of infrastructure assessment

2. Describe the goals of a penetration test

3. Identify and Explain the processes and techniques for mitigating risks identified in an infrastructure assessment

4. Explain the goals and content for communicating the results of a penetration test and remediation plan to a managerial audience.

Survey Results: In an end of course survey students responded to the following questions:

“Did you learn the same amount without a textbook?”

77.78% said “definitely yes”

22.22% said “probably yes”

“Were the learning materials enough to meet the outcomes?”

100% said “yes”

**IT4863 Web and Mobile Application Security**

1. Students who complete this course successfully will be able to

2. Demonstrate how to manage network systems;

3. Apply the various management strategies to managing networks;

4. Describe concepts of network configuration management;

5. Demonstrate skills in configuring specialized network security software

Survey Results: In an end of course survey students responded to the following questions:

“Did you learn the same amount without a textbook?”

75.0% said “definitely yes”

25.0% said “probably yes”

“Were the learning materials enough to meet the outcomes?”

100% said “yes”

**Course Comparisons:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Course # | DFW rates current | DFW rates previous | Average GPA current | Average GPA previous |
| IT 4603 | 3% | No previous | 93.2 |  |
| IT 4773 | 4% | No previous | 88.6 |  |
| IT 4863 | 4% | 5% | 89.4 | 91.2 |
| IT 4883 | 6% | 6% | 86.4 | 86.7 |

The four courses in the project are showing DFW rates and Average GPAs that are very similar for the two courses that have been taught previously. For the two new courses, this will be the baseline for future assessment comparisons.

# Sustainability Plan

*Describe how your project team or department will offer the materials in the course(s) in the future, including the maintenance and updating of course materials.*

The IT department at Kennesaw State University implements a course architect system for all courses. A faculty who is assigned to a course as the course architect, is responsible for the content of the course and teaches the course regularly. All of our ALG faculty developers are a course architect for the proposed courses. Our team members not only develope the no-cost-to-student learning material for the courses, but also teach the courses for the first time using the new material. As a course architect, our team member will also make sure a course is continuously taught using developed no-cost learning material in the future semesters even the course might have a different instructor.

Moreover, the developed course content is not only available at the learning management system but also archived at the department server. It is also our department policy that there are at least two faculty who regularly teach a course. This further ensures the developed learning material will be continuously used and updated even when there is a personnel turnover.

The IT department also has well-established course continual improvement plan. Each course is assessed each semester after being taught, and a course will be formally evaluated and updated every three years or earlier if the need arises. A course architect is in-charge of those assessment efforts. Thus, we are committed to continuously update the no-cost learning material in the proposed courses based on research, assessment results, and feedback from students and alumni. As shown in the support letter from the original proposal, our transformation efforts have strong support from our Department Chair which further ensure the sustainability of our transformation efforts.

# Future Affordable Materials Plans

*Describe any impacts or influences this project has had on your thinking about or selection of learning materials in this and other courses that you will teach in the future.*

The Information Technology Department at Kennesaw State University is committed to creating our BSIT degree program and MSIT degree program as compete “Z” degrees – ones that have no-cost learning materials for each course. We have successfully created many of our courses and are working to complete the development of no-cost learning materials for the courses that have not yet been changed. This creates an enormous savings for our majors with not having to buy textbooks for any of their major courses in their degree. It is an exciting venture and the ALG grants have made this all possible.

# Future Scholarship Plans

*Describe any planned or actual papers, presentations, publications, or other professional activities that you expect to produce that reflect your work on this project.*

In addition, the faculty for this ALG proposal will be looking for opportunities to present papers and research at conferences for Open Source and OER materials. Previous ALG participants have given peer-reviewed presentations at various conferences, including OpenEd, and discipline specific conferences. As travel opens up, we expect that our faculty will be able to give more face-to-face presentations as well as virtual presentations.

# Description of Photograph (optional)

*This is where a team can list the names of the people shown in this separately uploaded photograph, along with their roles, if applicable.*

With COVID a couple of our faculty are only teaching online and do not come to campus – thus we do not have a photograph this round.