Affordable Learning Georgia Affordable Materials Grants  
Transformation Grants Final Report

*(or Textbook Transformation Grants, if R17 or earlier)*

Once you have completed this template, to submit your Final Report, go to the [Final Report submission](https://survey.zohopublic.com/zs/xTCCvG) form.

The final report submission form allows you to submit the following:

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

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

* Qualitative/Quantitative Measures data files (optional, as needed)

*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 another event.

# General Information

**Date:** 5/15/2022

**Grant Round:** 19

**Grant Number:** 590

**Institution Name(s):** Georgia Southern University

**Project Lead:** Atef Mohamed

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

Team member 1: Atef Mohamed, amohamed@georgiasouthern.edu

Team member 2: Christopher Kadlec, ckadlec@georgiasouthern.edu

Team member 3: Hossain Shahriar, hshahria@kennesaw.edu

Team member 4: Dawn Cannon-Rech, dcannonrech@georgiasouthern.edu

Team member 5: Deborah Walker, dwalker@georgiasouthern.edu

Team member 6: Students: **names removed**

**Course Name(s) and Course Numbers:** IT 2530- Operating Systems

**Semester Project Began:** Summer 2021

**Final Semester of Implementation:** Spring 2022

**Total Number of Students Affected During Project:** 69 students

# 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.*
  2. *Describe any materials you created or revised/remixed that will be shared with the public. Include the* [*open license your materials will be shared under*](https://creativecommons.org/share-your-work/)*—for most materials, this will be an Attribution 4.0 License (CC BY) as required in the Grants Request for Proposals.*

This project was the first transformation project in the IT Department of Georgia Southern University. At the IT department level, the project outcomes ignited the idea of revamping other courses and converting them into OER. The project was also the first transformation project for me as the project PI. Through this project, I gained a lot of knowledge about the availability of an enormous amount of free OER that I never knew about their existence. A systematic search for resources made me create a wonderful information bank that helped me through the whole year and that will help me through the future years as well. My main challenge through this project was the time spent finding the appropriate resources and tuning the information to the course scope and teaching style. Through the work with the team, this problem was overcome by distributing the material to a number of faculty based on their areas of expertise. The accomplishment of the project is a complete set of high-quality OER chapters and their supporting teaching material. The generated material had also proven its efficiency through teaching three-course sections using them. The outcomes based on the student’s evaluation seem to be thrilling.

The outcomes of this transformation project are very satisfying and pleasant with numerous impacts on the department, program, instructions, and students. I believe continuous participation from my department in the affordable learning Georgia projects will follow after our successful outcomes in this project. The clear impact on the information technology bachelor’s degree program was to align this with the program vision and outcomes while embedding numerous new topics into the course learning. These new topics are a great support for the students who will be taking more advanced courses that follow the IT 2530. The impact of this project on the course instructions is apparently as great as the other impacts. The process of creating these OER helped produce a perfectly integrated set of materials as planned by the instructors. Selecting the level of depth of each topic in each chapter away from a specific textbook was by nature an elastic process that made it easier to combine the perfect scope of learning in the teaching course while emphasizing or understating selective topics effectively based on the need.

The impact of this project on the students was the largest of all. For the first time, I could see the satisfaction in the student’s eyes from the first day of classes to the last day. The student’s comments on the course instructions and material had proven their satisfaction. Some of them had described their happiness in learning through free OER. Some have expressed their appreciation for the well-written and well-organized OER material. Also, some commented on the great scope of the material and course design and its integration towards the complete set of learning outcomes as specified in the course syllabus. The students experienced a simple, clear, and systematic process to learn through this course. Finding the information was always a single click far from every page of the course website. They also found it controllable to learn from a specifically generated material for this course rather than a textbook full of extremely large additional details and information beyond their knowledge, time, and sometimes capabilities.

I believe every step we conducted in this project was effective and productive. The most important lesson that we learned as a team is the importance of a robust time plan in this project. As the project develops through the phases, the alignment of the material generation, team agreements, and resource management become somehow challenging. Thus, appropriate scheduling of project phases and milestones would make a less challenging process. If I do the project again, I will focus on generating a detailed time and project management plan.

Through this project, we have created OER for eight-course modules as follows.

1. Course plan and overview
2. Intro to Computers and Operating Systems
3. Process and Thread Management
4. CPU Scheduling and Process Synchronization
5. Main memory and Virtual Memory Management
6. Input-output devices and disk management
7. File system Management
8. Introduction to Shell Scripting
9. Systems Security and Access Control

For each module, we created a student learning OER document, a set of PowerPoint slides for lecturing purposes. We also created a set of quizzes, tests, and exams for assessment purposes. All the newly created reading and lecturing materials are created under a [Creative Commons](http://creativecommons.org/) Attribution License (CC BY) and will be published on OpenALG, Galileo, and other publicly accessed domains.

# Quotes

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

**Student: name removed**

Greetings, I thoroughly enjoyed this class, and can easily say looking back on the semester I have learned a ton of new information helping me work further on my degree. Dr. Shalan was a great professor he always made sure that we understood what he was teaching. It was also extremely nice that we did not have to purchase a textbook for this class, the fact that all the information was online was extremely helpful. I hope everyone has a great summer, and thanks for such a good class this semester.

**Student: name removed**

Hello Everyone, Dr. Shalan might be one of the best professors I have ever taken. He made sure to go into detail about subjects we were learning about. You were free to ask questions during lecture and he would stop and make sure you 100% understood the concept before moving on. He is also very caring if you have a situation going on he will understand. Just do the work and you should be fine in this course

**Student: name removed**

Hi SP 2022 class! I hope you all have an amazing semester and are inspired by this course. Taking this course opened me to the world of operating systems, a component of IT that many people may not know about or pay attention to. It is a pretty interesting topic and to know that every device we use is powered by an OS is cool to know. Dr. Shalan is also well informed on the subject and the course material was well organized, which made it easier to do our work.

# 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: \_69\_\_\_\_\_\_\_\_\_

* Positive: 80% of \_55\_\_\_\_\_\_\_ number of respondents
* Neutral: 10% of \_7\_\_\_\_\_\_\_ number of respondents
* Negative: 10%\_\_\_\_\_ % of 6\_\_\_\_\_\_\_ 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:

* 90%\_\_ Positive: Higher performance outcomes measured over previous semester(s)
* 10%\_\_\_ 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?**

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

\_\_\_\_\_\_7.2% of students, out of a total \_69\_\_\_\_\_\_ 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 a 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.*

**Course sections in the 2022 spring**: 3

**Teaching styles:** IT 2530A (Synchronous remote), IT 2530C (F2F), ITW 253001F (Asynchronous online).

**Teaching tools:** Folio and Go-View.

In the combined three courses the following measures were aggregated as the average of all students.

* *Drop, fail, withdraw (DFW) delta rates: 7/69 students = ~10%*
* *Course retention and completion rates: 62/69 students = ~90%*
* *Average course grade: 85% (assuming A=95%, B=85%, C=75%, D=65%, F=55%, summing up)*
* *Pre-and post-transformation DFW comparison: 2/35 students (in previous 2 Fall 2021 courses taught by D. Atef Mohamed) = ~6%*

***Surveys, interviews, and other qualitative measures***

In 3 courses, the following table describes the student grades in the spring 2022 semester.

* Grade A: 32 students of 69
* Grade B: 20 students of 69
* Grade C: 10 students of 69
* Grade D: 0 students of 69
* Grade F: 4 students of 69
* Withdraw: 3 students of 69

**Student evaluation:**

The following questions are part of the standard university student evaluation questionnaire that mainly addresses the course material. The provided measures are calculated based on three-course sections. The measure of each question is part of 5 as the total.

* Q12 Important points were stressed in this course: 4.04 of 5
* Q13 The course material was well organized: 4.12 of 5
* Q14 The presentation of the course material was clear: 4.17 of 5
* Q15 The class stayed focused on course objectives: 4 of 5
* Q16 The graded activities reflected course content: 4.4 of 5

The student evaluation of the teaching material seems to be high compared to the average student evaluation in the university. All the measures are above 4 which indicates that the majority of the students either agree or strongly agree with the question provided.

The DFW rate in the three courses of this semester is 10% while in the two Fall 2021 courses taught by me (Atef Shalan), the DFW was 6%. An important factor that influenced this measure is the teaching of an online course this spring. The online course alone this semester included 3 fails and 1 withdrawn student out of the 28 online students. This ratio is relatively high and that is what increased the DFW this semester to 10%. The ratio of DFW in online courses is usually higher since the students usually have various demography and diversities with respect to age, profession, background, availability, etc. Without this online course, the DFW ratio in the other two courses would have been 3/41 students, i.e., 7.3% which is similar to the previous semester.

# 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 2530 operating system course is part of the core curriculum of two bachelor’s degree programs in Information Technology. The course will be usually offered in three sections in the Fall and the Spring and will be offered in two sections in the summer. We plan to continue using the generated OER in all our future offerings of IT 2530. Therefore, we will always maintain the consistency and solidarity of the generated material. We will take care of the resources and continuously sustain and renew them to suit the future demands of information technology. Our maintenance activities of the generated OER will include the following:

* Twice a year, we will check the published materials to make sure the OER resources used in all modules are still available. If they are not available, we will patch the course with a different OER whether adopted or created.
* We will review the links in all web pages to check for any broken links, unavailable resources, or other errors that may result from the aging of the published materials.
* Occasionally, we will update some resources to reflect the possible future update to the course learning objectives or to improve the offered course materials as we find necessary.

# 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.*

We are planning to propose a new transformation grant in the near future rounds regarding our Data visualization course IT 3230 in addition to some other courses from the IT department, and possibly other college departments as well.

# 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.*

At the current time, we investigate how to proceed with the project to further publish some articles based on the project outcomes.

# 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.*

We have not taken any photos of the course classes during the running semester.