

## Table of Contents

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# Application Summary

## Competition Details

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<b>Competition Title:</b>	Textbook Transformation Grants, Round Twelve (Fall 2018-2019)
<b>Category:</b>	University System of Georgia
<b>Award Cycle:</b>	Round 12
<b>Submission Deadline:</b>	09/13/2018 at 11:59 PM

## Application Information

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<b>Submitted By:</b>	Paul Hadavas
<b>Application ID:</b>	2575
<b>Application Title:</b>	378
<b>Date Submitted:</b>	09/11/2018 at 8:23 AM

## Personal Details

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<b>Institution Name(s):</b>	Georgia Southern University
<b>Applicant First Name:</b>	Paul
<b>Applicant Last Name:</b>	Hadavas
<b>Applicant Email Address:</b>	phadavas@georgiasouthern.edu
<b>Applicant Phone Number:</b>	912-344-3091
<b>Primary Appointment Title:</b>	Associate Professor
<b>Submitter First Name:</b>	Paul
<b>Submitter Last Name:</b>	Hadavas
<b>Submitter Email Address:</b>	phadavas@georgiasouthern.edu
<b>Submitter Phone Number:</b>	912-344-3091
<b>Submitter Title:</b>	Associate Professor

## Application Details

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### Proposal Title

378

### Final Semester of Project

Fall 2019

### Requested Amount of Funding

10,800

### Type of Grant

No-or-Low-Cost-to-Students Learning Materials

**Course Title(s)**

Survey of Calculus

**Course Number(s)**

MATH 1232

**Team Member 1 Name**

Paul Hadavas

**Team Member 1 Email**

phadavas@georgiasouthern.edu

**Team Member 2 Name**

William Coggins

**Team Member 2 Email**

wcoggins@georgiasouthern.edu

**Team Member 3 Name**

**Team Member 3 Email**

**Team Member 4 Name**

**Team Member 4 Email**

**Additional Team Members (Name and email address for each)**

**Sponsor Name**

Sharon Taylor

**Sponsor Title**

Professor and Chair

**Sponsor Department**

Mathematical Sciences

**Original Required Commercial Materials (title, author, price)**

Calculus and Its Applications with online access, Bittinger, Ellenbogen, and Surgent (\$227.40)

or

MyMathLabPlus Student Access (\$123.55)

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

30

**Average Number of Sections Affected by Project in One Academic Year**

10

**Total Number of Students Affected by Project in One Academic Year**

300

**Average Number of Students Affected per Summer Semester**

20

**Average Number of Students Affected per Fall Semester**

140

**Average Number of Students Affected per Spring Semester**

140

**Original Total Cost per Student**

\$123.55-\$227.40

**Post-Project Cost per Student**

\$0

**Post-Project Savings per Student**

\$123.55-\$227.40

**Projected Total Annual Student Savings per Academic Year**

\$37,065-\$68,200

**Using OpenStax Textbook?**

No

**Project Goals**

Survey of Calculus is required for business majors but open to other majors. Our main goal is to adopt an open-source textbook with an accompanying online homework system (WeBWork) that will bring down the cost for our students. Additionally, we will create supplemental material for instructors and students in an effort to improve student success. Finally, this grant will be among the first of many collaborations between faculty members across the campuses of the newly-consolidated Georgia Southern University.

**Statement of Transformation**

With the completion of consolidation, a unified topics list for Survey of Calculus (Math 1232) was compiled by Paul Hadavas and William Coggins in March 2018. In the process of the collaboration, it was suggested that the students would benefit from a no-cost option textbook yet still receive the same level of instruction. For the Fall 2018 semester, there are two sections taught on the Armstrong campus and fourteen sections taught on the Statesboro campus. Across both campus, the total enrolled for the semester is 584 students. Currently these students are required to buy either a textbook/code or an access code. The Spring semester generally has more sections on the Statesboro campus and the business program on the Armstrong campus is expected to grow and therefore will require additional sections in the future. For an entire academic year (Fall, Spring, Summer), there are over 1200 students enrolled in Math 1232 over both campuses.

The project will utilize a current open-sourced text, free online homework system and supplemental material (over topics not covered in sufficient detail in the text).

The immediate impact for the students is a reduced financial burden and course content structured with business applications applicable to their major. According to the National Center for Education Statistics, 90% of full-time beginning undergraduates starting in 2016 at Georgia Southern University received some kind of financial aid. Also, on the Armstrong campus there is a large military presence (over 1200 receiving GI Bill benefits) and many non-traditional students (29% of the student population is 25 or older). Students on both campuses would be relieved at the prospect of a no-cost textbook and the supplemental material would provide relevant examples to their major.

The impact among the faculty will be students with instant access to materials and an instructor's ability to tailor homework needs through WeBWorK. Finally, for the department, we are hopeful that the open-source text will be adopted for all sections of Math 1232. Most core classes on the Armstrong campus use open texts but this would be the first adoption of one across both campuses. It can serve as an example to the faculty on the Statesboro campus as to the feasibility of no(or low) cost options.

#### **Transformation Action Plan**

Paul Hadavas and William Coggins are subject matter experts and will be the instructors of record for the project's term. The only open-source text found so far that is specific to business calculus has been Applied Calculus by Calaway, Hoffman and Lippman and can be downloaded at [www.opentextbookstore.com](http://www.opentextbookstore.com) . Paul has opted to use this text for the Fall 2018 semester and William is using the text that is required for all Statesboro sections. A review of the open-source textbook reveals that, while all of the course topics are covered, more detail is needed and more homework problems have to be generated. Also, during the end of Fall 2018 semester, the free online homework system(WeBWorK) will need to be explored and prepared for immediate use in the following semester.

In Spring 2019, both instructors will use the open text along with WeBWorK. Throughout the semester the instructors will alternate creating supplemental material for each section of the text. This would encompass additional examples geared for business students and appropriate homework problems. By the end of Summer 2019, a complete supplement to the Applied Calculus text will be ready. Not only will the extra examples be useful, but, for faculty not utilizing the online homework system, the added homework problems will be particularly helpful.

At the start of the Fall 2019 semester, all material and online homework will be ready for use. By the end of the semester, data collected across the terms will be analyzed. Also, an opportunity to present the process of adopting/creating open-source material occurs in March 2019 at the regional sectional meeting of the Mathematical Association of America at Lee University in Tennessee.

The supplemental material will be uploaded to GALILEO and, for the Georgia Southern math faculty, stored on an accessible Google Drive account.

#### **Quantitative & Qualitative Measures**

- Quantitative: DFW rates. Comparisons from Fall 2018, Spring 2019, Summer 2019 and Fall 2019 separated by campus due to the differing student populations will be made.
- Quantitative: Scores on Common Assessment questions. The sections with the open-source text should not be worse than those sections using the standard text.
- Qualitative: Student questionnaires. In addition to the regular end-of-semester course evaluation questions, we will ask specific questions geared toward student attitudes of the open-source resources. Questions like:

“Are you satisfied with the quality of the textbook and online homework system?”

“Do you wish other instructors would adopt open-source texts?”

“Has using the no-cost text and online resources been detrimental to this course?”

### Timeline

- October 2018 – attend kick-off meeting
- Fall 2018 – review textbook and online homework options
- Spring 2019 – implementation of open-source material
- Spring 2019 – development of supplemental material
- March 2019 - Presentation at Southeast MAA meeting in TN
- Summer 2019 – completion of supplemental material
- Fall 2019 – implementation of completed course
- December 2019 – data collection and final report submission

### Budget

For this proposal, we are requesting \$10,800 for instructor compensation and travel:

- \$5000 for compensation for preparation time by Paul Hadavas.
- \$5000 for compensation for preparation time by William Coggins.
- \$800 for travel to kick-off meeting and MAA Southeastern meeting in March 2019.

### Sustainability Plan

The Armstrong campus faculty have a history of taking past Textbook Transformation grants (for Engineering Calculus, Statistics and Quantitative Skills and Reasoning) and expanding to all sections beyond those on the initial grant. Paul Hadavas will be the point of contact on the Armstrong campus for faculty willing to adopt the free resource and maintain course materials.

As Course Coordinator on the Statesboro campus, William Coggins can strongly suggest that the faculty attempt the course with the no-cost text. He will also serve as an advisor for those wanting to use the online homework aspect of the course. In addition, we can present to the faculty our experiences and benefits gained through the adoption of an open-sourced text.

## Acknowledgment

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### Grant Acceptance

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





August 22, 2018

To Whom It May Concern:

This letter is in support of the Affordable Learning Grant submitted by Dr. Paul Hadavas and Mr. William (Anthony) Coggins. I find their proposal to have significant merit in terms of decreasing the financial burden of textbooks for students as well as contributing to the collection of online homework problems tailored specifically for business students.

Dr. Hadavas and Mr. Coggins have already invested a great deal of their time to improve MATH 1232 – Survey of Calculus for the consolidated Georgia Southern University. They worked collaboratively to merge two distinct topics lists to create a unified curriculum for business students who take the course. This grant is a natural extension of the work they have already done.

With only one open source text specific to Business Calculus, it is imperative that Dr. Hadavas and Mr. Coggins develop additional resources to accompany the text. With Dr. Hadavas already using the text in Fall 2018, he can take note of areas where students will need additional notes or homework. The team will have a built-in springboard to launch them into their project in the spring.

The WeBWork online homework system from the Mathematical Association of America (MAA) has been used on both the Statesboro and Armstrong campuses for other courses. This will be the first time using the system for MATH 1232 and it is anticipated the creation of additional problems with business applications will not only enhance the Georgia Southern course, but contribute to the WeBWork collection of problems to benefit others as well.

The Armstrong campus has had quite a bit of success with using open source texts. This project will provide an opportunity for the Statesboro campus to pilot MATH 1232 and expand to other MATH 1232 sections. In the long term, this project can serve as a means to explore options for other courses on the Statesboro campus as well.

I support Dr. Hadavas and Mr. Coggins' proposal to incorporate no-cost options for students in MATH 1232. Their development of additional resources will make the no-cost option feasible for many students across both campuses.

Please feel free to contact me if you need additional information.

Sincerely,

Sharon Taylor  
Department Chair

DEPARTMENT OF MATHEMATICAL SCIENCES

Statesboro Campus: MATH PHYSICS BLDG ROOM 3008 • P.O. BOX 8093 • STATESBORO, GA 30460 • 912-478-5390

Armstrong and Liberty Campus: UNIVERSITY HALL ROOM 281/283 • 11935 ABERCORN STREET • SAVANNAH, GA 31419 • 912-344-3330

[cosm@georgiasouthern.edu/math](mailto:cosm@georgiasouthern.edu/math)

SAVANNAH • STATESBORO • HINESVILLE

Hadavas, Paul - #2575

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## Textbook Transformation Grants, Round Twelve (Fall 2018-2019)

### Proposal Form and Narrative

#### Notes

- The proposal form and narrative .docx file is for offline drafting and review. Submitters must use the InfoReady Review online form for proposal submission.
- The only way to submit the official proposal is through the online form in Georgia Tech’s InfoReady Review. The link to the online application is on the [Round 12 RFP Page](#).
- The italic text we provide is meant for clarifications and can be deleted.

#### Applicant, Team, and Sponsor Information

The **applicant** is the proposed Project Lead for the grant project. The **submitter** is the person submitting the application (which may be a Grants Officer or Administrator). The submitter will often be the applicant – if so, leave the submitter fields blank.

Institution(s)	Georgia Southern University
Applicant Name	Paul Hadavas
Applicant Email	<a href="mailto:phadavas@georgiasouthern.edu">phadavas@georgiasouthern.edu</a>
Applicant Phone #	912-344-3091
Applicant Position/Title	Associate Professor
Submitter Name	
Submitter Email	
Submitter Phone #	
Submitter Position	

Please provide the first/last names and email addresses of all team members within the proposed project. Include the applicant (Project Lead) in this list. Do not include prefixes or suffixes such as Ms., Dr., Ph.D., etc.

	Name	Email Address
Team Member 1	Paul Hadavas	<a href="mailto:phadavas@georgiasouthern.edu">phadavas@georgiasouthern.edu</a>
Team Member 2	William Coggins	<a href="mailto:wcoggins@georgiasouthern.edu">wcoggins@georgiasouthern.edu</a>
Team Member 3		
Team Member 4		
Team Member 5		
Team Member 6		
Team Member 7		
Team Member 8		

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

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

Sharon Taylor, Professor and Chair, Department of Mathematical Sciences, Georgia Southern University
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## Project Information and Impact Data

<b>Title of Grant Project</b>	<i>Affordable Business Calculus</i>
<b>Type of Grant</b>	<i>"No-or-Low-Cost-to-Students Learning Materials"</i>
<b>Requested Amount of Funding</b>	\$10,800
<b>Course Names and Course Numbers</b>	Math 1232 – Survey of Calculus
<b>Final Semester of Project</b>	Fall 2019
<b>Average Number of Students Per Course Section Affected by Project</b>	30 (Armstrong campus) 30 (Statesboro campus)
<b>Average Number of Sections Affected by Project in One Academic Year</b>	5 (Armstrong campus) 5 (Statesboro campus)
<b>Total Number of Students Affected by Project in One Academic Year</b>	300
<b>Average Number of Students Affected per Summer Semester</b>	20
<b>Average Number of Students Affected per Fall Semester</b>	140
<b>Average Number of Students Affected per Spring Semester</b>	140
<b>Title/Author of Original Required Materials</b>	<i>Calculus and Its Applications with online access, Bittinger, Ellenbogen, and Sargent</i> <i>or</i> <i>MyMathLabPlus Student Access</i>
<b>Original Total Cost Per Student</b>	<i>\$227.40 (book and access) or \$123.55 (access only)</i>
<b>Post-Project Cost Per Student</b>	\$0
<b>Post-Project Savings Per Student</b>	\$123.55-\$227.40
<b>Projected Total Annual Student Savings Per Academic Year</b>	\$37,055-\$68,220
<b>Using OpenStax Textbook?</b>	No.

## Narrative Section

### 1. Project Goals

**Survey of Calculus is required for business majors but open to other majors. Our main goal is to adopt an open-source textbook with an accompanying online homework system (WeBWorK) that will bring down the cost for our students. Additionally, we will create supplemental material for instructors and students in an effort to improve student success. Finally, this grant will be among the first of many collaborations between faculty members across the campuses of the newly-consolidated Georgia Southern University.**

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The supplemental material will be uploaded to GALILEO and, for the Georgia Southern math faculty, stored on an accessible Google Drive account.

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### Note: Letter of Support

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