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Application Summary

Competition Details

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

Application Information

Submitted By:	Shreyas Desai
Application ID:	2608
Application Title:	401
Date Submitted:	09/14/2018 at 8:24 AM

Personal Details

Institution Name(s):	Atlanta Metropolitan College
Applicant First Name:	Shreyas
Applicant Last Name:	Desai
Applicant Email Address:	sdesai@atlm.edu
Applicant Phone Number:	(404)756-4781
Primary Appointment Title:	Assistant Professor of Mathematics
Submitter First Name:	Shreyas
Submitter Last Name:	Desai
Submitter Email Address:	sdesai@atlm.edu
Submitter Phone Number:	(404)756-4781
Submitter Title:	Assistant Professor of Mathematics

Application Details

Proposal Title

401

Final Semester of Project

Fall 2019

Requested Amount of Funding

\$10,800

Type of Grant

Gateways to Completion

Course Title(s)

College Algebra and Mathematical Modeling

Course Number(s)

Math 1111 and Math 1101

Team Member 1 Name

Shreyas Desai

Team Member 1 Email

sdesai@atlm.edu

Team Member 2 Name

Anthonia Ekwuocha

Team Member 2 Email

aekwuocha@atlm.edu

Team Member 3 Name

Noel Whelchel

Team Member 3 Email

nwhelchel@atlm.edu

Team Member 4 Name

Team Member 4 Email

Additional Team Members (Name and email address for each)

Sponsor Name

Dr. Bryan Mitchell

Sponsor Title

Dean of the Division of Science, Mathematics, and Health Professions

Sponsor Department

Division of Science, Mathematics, and Health Professions

Original Required Commercial Materials (title, author, price)

College Algebra, 10th Edition by Sullivan (\$262.00)

College Algebra, 6th Edition by Rockswald (\$265.00)

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

MATH 1111 = 17.7 MATH 1101 = 1

Average Number of Sections Affected by Project in One Academic Year

MATH 1111 = 26 MATH 1101 = 2

Total Number of Students Affected by Project in One Academic Year

MATH 1111 = 918 MATH 1101 = 6

Average Number of Students Affected per Summer Semester

MATH 1111 = 21.3 MATH 1101 = 0

Average Number of Students Affected per Fall Semester

MATH 1111 = 20.4 MATH 1101 = 3

Average Number of Students Affected per Spring Semester

MATH 1111 = 18.9 MATH 1101 = 3

Original Total Cost per Student

MATH 1111 - \$262 , MATH 1101 - \$265

Post-Project Cost per Student

\$25.00

Post-Project Savings per Student

\$477.00

Projected Total Annual Student Savings per Academic Year

\$477.00

Using OpenStax Textbook?

Yes

Project Goals

The primary goals of the College Algebra and Mathematical Modeling textbook transformation project are to:

Ø **Support Affordable Learning and Gateway to Completion Project by adopting a peer-reviewed, zero-cost textbook for College Algebra lecture and Mathematical Modeling providing significant cost savings to students at Atlanta Metropolitan State College.**

Ø **Create a learning outcome and Real-World Applications that is tied to STEM courses, as well as NON-STEM courses to reduce DFW rate.**

Ø **Create additional supplemental resources such as Mini Lecture Videos, Math Handouts, Additional Online Resources such as Galileo and Merlot that is tied to concepts thought in College Algebra courses.**

Ø **Foster Deep Learning by using Meta-Cognition Strategies and Collaborative Learning by forming Mini-Project as a part of formative assessments that will evaluate learning attainment.**

Statement of Transformation

Ø A description of the current state of the course, department, and/or institution if relevant.

Ø An overall description of the project and how it will impact the Course, Department, and Institution as described previously. Include references to scholarly literature to support the claims of your impact if possible.

Ø The aim of this proposal is to significantly reduce the cost for students taking College Algebra and Mathematical Modeling at Atlanta Metropolitan State College. The rise in the cost of textbooks has become a challenge for the population of students that were serve, who are predominately non-traditional, underrepresented, at-risk students. Adoption of these texts would greatly alleviate the burden of cost by making their education more affordable (Acenet, 2015).

Ø One solution to eliminating the high cost of textbooks is through the adoption of Open Educational Resources (OERs), which are free, accessible textbooks and supplemental materials located in public domain or authored with open copyright licenses (Choi, 2017). This proposal addresses all sections of College Algebra and Mathematical Modeling. Currently, this course sequence costs the students \$502. Due to the high cost the texts required for these courses, students tend to rely on lectures only without getting the benefit of having the textbook and the accompanying resources. This trend has led to an increase in the DFW rate in these courses at Atlanta Metropolitan State College. Transitioning to OER materials reduces that cost to \$0.00, saving Atlanta Metropolitan State College students thousands in textbook costs yearly. This transformation would provide financial relief for our students enabling them to have access to course materials that are necessary for successful completion of these courses.

Ø Presently, students enrolled at Atlanta Metropolitan State College are required to take either MATH 1111 or MATH 1101 in Area A in the Core Curriculum. Professor Desai's role as College Algebra, Mathematical Modeling Course Coordinator, Co-Chair of the Gateway to Completion Project, and the Co-Chair of the MATH 1111 and MATH 1101 Redesign Sub-Committee for Gateway to completion Project. I am responsible for the coordination and management of the College Algebra and Mathematical Modeling sections of these courses. Dr. Anthonia Ekwuocha is an Assistant Professor of Mathematics and Co-Chair of Math 1111 Redesign Sub-Committee for Gateway to completion Project. Professor Noel Whelchel is an Instructor of Mathematics who teaches College Algebra and Mathematical Modeling courses. This team consists of faculty that will transform both the Associate of Mathematics Pathway and the Bachelor of Science with a Major in Applied Mathematics Program at Atlanta Metropolitan State College, by making learning affordable for students pursuing the aforementioned degrees.

Transformation Action Plan

Professor Shreyas Desai will be responsible for the review, selection and adoption of no-cost open-access materials, course alignment and content redesign of Math 1111 and Math 1101. Professor Desai will serve as the Trainer for the Mathematics Faculty on the implementation of Meta-Cognition Strategies and Collaborative Learning Techniques that will be implemented in both the newly redesigned Math 1111 and Math 1101 courses.

Dr. Anthonia Ekwuocha will be responsible for creating additional supplemental resources and identifying learning outcomes that are aligned with other STEM and NON-STEM courses. The aforementioned will increase the retention, progression, and graduation (RPG) rates at Atlanta in Atlanta Metropolitan State College, the only access institution in the city of Atlanta. Moreover, our students will be better prepared to transition successfully (grades of C or Better) into upper-level STEM and Non-STEM courses.

Dr. Ekwuocha will also be responsible for collecting and analyzing quantitative and qualitative data of student performance and student course evaluations to measure the effectiveness of the project.

Professor Noel Whelchel will be responsible for identifying additional online resources, that will replace expensive commercial textbooks with OER, library, or other no-cost or low-cost materials. Additionally, he will be responsible for creating additional resources such as Mini-Lecture Videos, and/or Supplemental Resources for the MATH 1111 and MATH 1101 courses.

Quantitative & Qualitative Measures

Ø Throughout the transformation project, the Professors of Mathematics will assess the project, employing both quantitative and qualitative measures. Quantitative measures will involve analysis of DFW rates both before and after implementation. In addition, student course evaluation data will be gathered to evaluate student perceptions of the course modifications and the new OpenStax text. Also, the student course evaluation will contain a section for students to respond to open-ended questions describing the perceived quality of the course materials and their experience with the transformation.

Timeline

Ø September 2018- Submit transformation proposal

Ø September 2018- Receive award notification

Ø Spring 2019- Content evaluation of the OpenStax textbook and lab manual; make necessary modifications to modules in BrightSpace

Ø Summer 2019- Completion of materials

Ø Fall 2019- Implementation of materials in all course and lab sections of MATH 1111 and MATH 1101.

Ø Fall 2019- Office of Institutional Effectiveness works with MATH 1111 and MATH 1101 faculty to collect qualitative and quantitative data on and student experiences and success rate.

Ø December 2019- Submit final report of findings to Affordable Learning Georgia.

Budget

Professor Shreyas Desai \$3,400 for the review, selection and adoption of no-cost open-access materials, course alignment and content redesign of MATH 1111 and Math 1101. Professor Desai will be conducting research on Meta-Cognition Strategies and Collaborative Learning Techniques that will be implemented in the MATH 1111 and MATH 1101 courses.

Dr. Anthonia Ekwuocha \$3,300 for creating additional resources and identifying learning outcomes that is aligned with other STEM and NON-STEM courses that will help students matriculate in all other courses. Dr. Ekwuocha will be responsible for collecting and analyzing quantitative and qualitative data of student performance and student course evaluations to measure the effectiveness of the project.

Professor Noel Whelchel \$3,300 for identifying additional online resources and creating additional resources such as Mini-Lecture Video, Supplemental Resources for our students in Math 1111 and Math 1101 courses.

Grant kickoff meeting and other travel as necessary- \$800

Total Project Expenses: \$10,800

Sustainability Plan

The redesigned College Algebra and Mathematical Modeling courses will be offered each academic year and summer session. Course materials and updates for these courses will be made available on BrightSpace, which is easily accessible to all students enrolled in MATH 1111 and MATH 1101. In addition, a copy of the syllabus and teaching materials will be uploaded into a course shell in BrightSpace that is dedicated to the Division of Science, Mathematics and Health Professions, as well as the Department of Mathematics Office to ensure that all instructors for these courses have access to this information. Future plans involve the incorporation of ancillary materials (i.e. test bank, study guides, case studies) into these courses to promote an active learning environment.

Ø Data derived from this study will not only be used for improvement of the transformation courses, but it will also be used for the transformation of other courses within the Division. Implementation of the project in College Algebra and Mathematical Modeling will be shared at Atlanta Metropolitan State College during the Spring Faculty Institute to encourage other Divisions to support the Affordable Learning Georgia Initiative. Team members involved in this project will provide professional development to AMSC faculty on the steps to identifying an open texts suitable for their courses and integrating them into their curricula. If funding is available, data gathered from this project will be presented at local, state, or national meetings/conferences and possibly submitted for publication in a peer-reviewed journal.

Acknowledgment

Grant Acceptance

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



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1630 METROPOLITAN PARKWAY, SW
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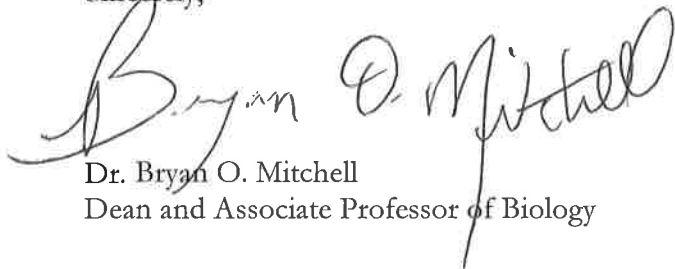
September 13, 2018

To Whom It May Concern,

This letter is sent to confirm my support of Prof. Shreyas Desai's Affordable Learning Georgia—Textbook Transformation Grant, Round Twelve (Fall 2018-2019) grant application. I believe that the students at Atlanta Metropolitan State College will greatly benefit from the zero-cost textbook for the College Algebra and Mathematical Modeling courses. You have developed a comprehensive proposal that is expected to assist well over 918 STEM and Non-STEM students per year, which will prepare them for further educational endeavors.

I appreciate your dedication and efforts to identify opportunities that will continue to enrich and adequately train our underserved, underrepresented and disadvantaged minority students. As always, I pledge my full support of your Textbook Transformation Grant proposal.

Sincerely,



Dr. Bryan O. Mitchell
Dean and Associate Professor of Biology



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

Proposal Form and Narrative

Applicant, Team, and Sponsor Information

Institution(s)	Atlanta Metropolitan State College
Applicant Name	Shreyas Desai
Applicant Email	sdesai@atlm.edu
Applicant Phone #	(404)756-4781
Applicant Position/Title	Assistant Professor of Mathematics
Submitter Name	Shreyas Desai
Submitter Email	sdesai@atlm.edu
Submitter Phone #	(404)756-4781
Submitter Position	Assistant Professor of Mathematics

	Name	Email Address
Team Member 1	Shreyas Desai	sdesai@atlm.edu
Team Member 2	Anthonia Ekwuocha	aekwuocha@atlm.edu
Team Member 3	Noel Whelchel	nwhelchel@atlm.edu
Team Member 4		
Team Member 5		
Team Member 6		
Team Member 7		
Team Member 8		

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Dr. Bryan Mitchell, Dean of the Division of Science, Mathematics, and Health Professions Atlanta Metropolitan State College
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Project Information and Impact Data

Title of Grant Project	<i>Decreasing DFW Rates: Implementation of Deep Learning Strategies in Gateway to Completion Courses in Mathematics</i>
Type of Grant	<i>"Gateways to Completion."</i>
Requested Amount of Funding	\$10,800
Course Names and Course Numbers	MATH 1111, MATH 1101
Final Semester of Project	<i>Fall 2019</i>
Average Number of Students Per Course Section Affected by Project	MATH 1111- 17.7 MATH 1101- 1
Average Number of Sections Affected by Project in One Academic Year	MATH 1111 - 26 MATH 1101 - 2
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Title/Author of Original Required Materials	<i>College Algebra, 10th Edition by Sullivan</i> <i>College Algebra, 6th Edition by Rockswald</i>
Original Total Cost Per Student	<i>MATH 1111 - \$262</i> <i>MATH 1101 - \$265</i>
Post-Project Cost Per Student	\$25.00
Post-Project Savings Per Student	\$477.00
Projected Total Annual Student Savings Per Academic Year	\$477.00
Using OpenStax Textbook?	Yes

Narrative Section

1. Project Goals

- The primary goals of the College Algebra and Mathematical Modeling textbook transformation project are to:
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Mathematical Modeling providing significant cost savings to students at Atlanta Metropolitan State College.

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- o Create additional supplemental resources such as Mini Lecture Videos, Math Handouts, Additional Online Resources such as Galileo and Merlot that is tied to concepts thought in College Algebra courses.
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- A description of the current state of the course, department, and/or institution if relevant.
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References:

American Council on Education. 2015. *Open Textbooks: The Current State of Play*. <https://www.acenet.edu/news-room/Documents/Quick-Hits-Open-Textbooks.pdf>

Choi, Young Mi and Carpenter, Cathy (2017). Evaluating the Impact of Open Educational Resources: A Case Study. *Libraries and the Academy*, Vol. 17, No. 4 (2017), pp. 685-693.

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Note: [Letter of Support](#)



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September 13, 2018

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