**Affordable Learning Georgia Affordable Materials Grants  
Continuous Improvement Grants Final Report**

*(or Mini-Grants, for R17 and earlier)*

# General Information

Date: 12/16/24

Grant Round: Dall 2024

Grant Number: M274

Institution Name(s): University of North Georgia

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

John Bragelman, Assistant Professor, Mathematics  
Marnie Phipps, Professor, Mathematics  
Patty Condit, Professor, Mathematics  
Maryna Murdock, Professor, Finance  
Luke Atwood, Undergraduate Assistant, Finance

Project Lead: John Bragelman

Course Name(s) and Course Numbers: MAED 4201, Mathematics Education Seminar

Final Semester of Project: Fall 2024

***If applicable to your project:***

Average Number of Students Per Course Section: 6

Number of Course Sections Affected by Implementation of Revised Resources: 1

Total Number of Students Affected by Implementation of Revised Resources: 5

# Project Narrative

**Project Goals**

The Georgia Professional Standards Commission (GaPSC) sets the requirements and standards for teacher preparation programs in the state of Georgia. In 2022, Senate Bill 2022 was passed into law. The bill requires financial literacy education for all high school students in the state. In response, the GaPSC added a financial literacy endorsement to provide standards and requirements for secondary mathematics teachers (grades 7-12) and other disciplines to teach financial literacy to high school students in eleventh and twelfth grades. The new financial literacy standards stipulate that teacher “candidates demonstrate and apply understandings of the six major financial literacy concepts of earning income, spending, saving, investing, managing credit, and managing risk to plan rigorous and engaging instruction supporting high school students’ practical application of financial literacy knowledge and skills.” As a result, secondary mathematics teacher preparation programs in the state of Georgia must now add a financial literacy component to their program requirements.

This proposal seeks funding to develop a set of OER supplemental resources for our existing secondary mathematics teacher preparation courses for the new financial literacy standards. The supplemental resources will include (1) content modules for the six new financial literacy concepts for implementation in existing secondary mathematics teacher preparation courses and (2) mathematics tasks that align across the new financial literacy concepts and existing mathematics domains.

**Action Plan**

The project team developed five content modules that were implemented in the Mathematics Education Seminar – UNG’s content course for secondary mathematics teachers. The modules includes the following:

1. Earning income, spending, & saving
2. Managing credit
3. Managing risk
4. Investing - renting vs. buying a home
5. Investing – saving for retirement

Coursework in our teacher preparation program for future secondary math teachers includes coursework on several critical areas. These areas include the following: how to assess mathematics teaching and learning; principles of classroom management and supporting students with diverse learning needs; planning and implementing lessons that align with current, research-based best practices; how to teach mathematics; and finally, the special content knowledge required for teaching. The new financial literacy modules were implemented in the special content knowledge course – Mathematics Education Seminar. Notably, this course already utilizes existing OER for current topics.

Our mathematics content course is portfolio-based, meaning students’ proficiency is evaluated by a portfolio that includes mathematics problems and tasks in three main areas: 1) theoretical concepts, predominantly proofs; 2) analyzing and redesigning math tasks to make them more relevant to candidates’ future students and to make the tasks more rigorous; and 3) exploring multiple solutions and representations of solutions of math tasks. In other words, teacher candidates must exhibit expertise in several domains of content knowledge for teaching. Because of this and because of the course’s existing OER, the proposed financial literacy materials was implemented in this course.

To ensure flexibility in implementing the financial literacy curriculum in any secondary mathematics education program in Georgia, the proposed resources are module based. Each module includes several components as outlined in Table 1.

**Table 1. Module Components**

|  |  |
| --- | --- |
| **Component** | **Description** |
| Curriculum | A high-level overview of the fundamental concepts for each module |
| Vocabulary | Key terms for each module |
| Quiz | A short assessment for each content area to assess learners’ understandings. |
| Application Problems | Tasks for 4000-level content course for secondary math preservice teachers |

The plan to create and implement the curriculum aligned closely to our submitted proposal. The project team met in late November to discuss the curriculum requirements, and the two finance experts provided key guidance to our goals. The number of course modules was reduced from six to five to better align with the course structure and to better align the state standards set by content area. Drs. Bragelman, Phipps, and Condit began drafting the five modules, prioritize the curriculum first and the tasks second. When each curricular module was completed, it was sent to the financial experts, Dr. Murdock and Mr. Atwood, for an in-depth review. When the tasks were completed, Mr. Atwood completed the tasks and offered revision suggestions to ensure the tasks were relevant to late high school and college undergraduates. All curriculum and tasks were revised by semester start mid-August, and the modules were implements as proposed in Mathematics Education Seminar, MAED 4201.

In the interest of evaluating the effectiveness of this curriculum and its interaction with other curricular components already in place in the content cours, we implemented surveys to measure preservice teachers’:

* mathematics teaching self-efficacy and mathematics teaching outcome expectancy beliefs (Enochs et al., 2000);
* culturally responsive teaching self-efficacy and outcome expectancy beliefs (Siwatu, 2007); and
* financial knowledge (Avard et al., 2005).

IRB approval was received in early August (UNG IRB 2024-048-C&U).

**Timeline**

The timeline begins in May of 2024. Curriculum development, review, and testing was conducted in the summer months, from May to August. Implementation in MAED 4201, UNG’s mathematics content course for secondary preservice teachers, occurred in the Fall semester of 2024. The curriculum will be submitted to ALG in late December of 2024.

**Table 2. Timeline**

|  |  |
| --- | --- |
| **Month** | **Action Item** |
| May | Kickoff Meeting  Module Development  Individual Meeting with Q.A. (1 hour) |
| June | Module Development (continued)  Biweekly Check-in  Individual Meetings with Q.A.  Module Review by Q.A. |
|  |  |
| July | Curricular Revisions  Q.A. – Final Review  Math Task Review  IRB Submission |
| August | Module Development – Final Revisions |
| August –  December | Curriculum Implementation in MAED 4201 |
| December | Wrap-Up Meeting – Lessons Learned |
|  | Submit curricular materials to OpenALG for publication |

**Data & Feedback**

The project team collected feedback from the cohort of students in MAED 4201 in Fall 2024. We have not yet analyzed the quantitative survey data we have collected; however, we can share qualitative data. One of the survey questions was: *Overall, did you find the financial literacy curriculum useful? We are asking from two perspectives - from you as an individual and from you as a teacher who might teach a course on financial literacy?*

And excerpts from the responses from our preservice teachers:

* Overall, they were incredibly helpful to me as a student. The modules either added to my financial literacy or had me refresh and stay up to date with better options for my situation. Looking at different insurances or credit cards is not something I have done since selecting them and it was good for me to go back and assure that the selections I have made are still right for my circumstances.
* First, from a teacher perspective, a lot of what we discussed i.e. buying a home, taxes, investing, and renting is covered in the financial literacy class that I was student teaching in this semester. I think this class was definitely beneficial in helping me know what was going on. Also, I think it would be cool to add something on cars because they go into car insurance, stopping speeds, and safe driving in financial literacy class as well. I can say that I was not up to date on my financial literacy knowledge, but after this class, I do feel more prepared. I think also going more into retirement and investing could be beneficial as well.  
    
  From an individual perspective, also YES! I have learned more than I can put into this final about just life and the expenses that might come. I knew I was not necessarily prepared, but this class has helped me see what I need to do to become more prepared. Also, as stated in the above boxes, many of these decisions are coming quickly, so being able to budget with realistic numbers and looking at health insurance and retirement for us teachers is very beneficial. Overall, I would say that I have learned a lot, more than I think I have, and will use what I have learned to make future decisions.
* Yes! As a student, I really learned a lot about finances. Better yet, the practical aspects of the curriculum (performing calculations, creating spreadsheets, etc.) helped solidify my understanding; I feel confident in my ability to make mathematically informed financial decisions. As a teacher, I definitely see this curriculum as useful. If I ever teach a course on financial literacy, I will be pulling tasks from these modules (with adjustments, as needed). Often, I feel that finances are discussed in a very hypothetical sense; teaching kids finances with practical tasks like those presented in these modules would likely keep students interested and invested in learning the material.

In short, the preservice teachers found the modules beneficial. Their critical feedback was also valuable, and we will be revising the curriculum based on their recommendations before we upload it to OpenALG.

**References**

Enochs, L. G., Smith, P. L., & Huinker, D. (2000). Establishing factorial validity of the mathematics teaching efficacy beliefs instrument. *School Science and mathematics*, *100*(4), 194-202.

Siwatu, K. O. (2007). Preservice teachers’ culturally responsive teaching self-efficacy and outcome expectancy beliefs. *Teaching and teacher education*, *23*(7), 1086-1101.

Avard, S., Manton, E., English, D., & Walker, J. (2005). The Financial Knowledge of College Freshmen. *College student journal*, *39*(2).

# Materials Description

Five modules were created that included a high-level curriculum of the major concepts for each area, important vocabulary and definitions for readers, a quiz for module, and a math task aligned to the major concepts. The five module topics included:

1. Earning income, spending, & saving
2. Managing credit
3. Managing risk
4. Investing - renting vs. buying a home
5. Investing – saving for retirement

# Materials Links

# Future Plans

We will be presenting the curriculum and findings from our quantitative data collection at the following:

* The UNG math department’s monthly colloquium series in 2025
* Kennesaw State University’s All Things Open 2025
* The Georgia Association of Mathematics Teacher Educators (GAMTE)’s annual meeting at Rock Eagle in 2025