

## **Application for UTMOST: Undergraduate Teaching of Mathematics with Open Software and Textbooks**

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Please consider this application to officially participate in this UTMOST grant. Below, I have provided specifics regarding our course, our institution, and my experience with using software and only resources in my courses.

I would plan to implement this textbook into our existing MAT 213 – Applied Linear Algebra course at Mississippi College. Currently this course is scheduled every other year during the spring term. Due to upcoming curriculum changes, MC will need to start offering this course every spring starting with Spring 2017. We likely will only need to have one section each time. Due to room constraints (we meet in a computer lab), class size will be limited to 24 students.

MAT 213 has been offered at Mississippi College for many years and I have been the only instructor. In the existing course, we have been using Lay's Linear Algebra text with the WeBWorK online homework system for formative assessment. In addition, we use two open source software alternatives, Scilab and Sage. Matlab is also available in the lab.

I have been using software in my courses for more than two decades. In recent years, I have become one of the project leaders for and contributors to WeBWorK and have been an active supporter/user of the Sage project. Mississippi College maintains installations of WeBWorK <http://math.mc.edu/webwork2> (for over 8 years), Sage <http://sagenb.mc.edu> (for over five years), and the Sagecell <http://sagecell.mc.edu> (over one year). I personally maintain each of these systems. I currently utilize Sage worksheets for demonstrations in numerous classes and use the sage cell not only for quick answers in classes but also in the WeBWorK environment incorporated into problems as well as for general widgets in problem set descriptions.

In addition to my experience managing our local installations, I have contributed a number of interacts to the Sage wiki, integrated the sagecell into numerous WeBWorK problems, and provided a number of publically available worksheets on our server at Mississippi College. Also, I have been a participant in Sage Edu Days 3, 4, 5, & 6 and Sage Days 31 & 41. Since we have a local installation, I have not used SageMathCloud very much but am aware of its capabilities. I do have some familiarity with MathBook as well.

Mississippi College is a private liberal arts university located in Clinton Mississippi. We have a very diverse population totaling more than 5200 students covering a wide assortment of undergraduate majors plus over 55 graduate degree tracks at the masters and doctoral levels. In addition to providing instruction to majors in Mathematics, the Mathematics Department services all disciplines and especially so to students involved in STEM fields including those enrolled in our recently created electrical engineering program. It is expected that students taking this course will mostly be mathematics, computer science, engineering, or physics students although a few students will enroll from other areas as part of their core requirements.



Mississippi  
College

A CHRISTIAN UNIVERSITY

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December 10, 2015

Dear Dr. Beezer,

Please consider the attached application to participate in the UTMOST: Undergraduate Teaching of Mathematics with Open Software and Textbooks grant.

As chair of our Mathematics Department, I schedule all courses and am aware of the program activities and requirements. I will be able to make certain MAT 213 is offered and provided with appropriate computational resources during the time frame needed for this project.

Please let me know if you have any questions about our facilities or if we can help you in any other way.

Thanks,

John Travis, Professor and Chair Mathematics

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