

CONCORDIA COLLEGE

Department of Mathematics

December 17, 2015

Prof. Beezer and the UTMOST team:

I am very pleased to apply for the UTMOST linear algebra/abstract algebra project and cannot stress enough what a difference it would make to my students and institution to have my application be accepted.

My participation would be for our Math 325, Modern Algebra I, course, which is offered every fall semester. The class has strong enrollments, about equally split between Mathematics and Mathematics/Education majors (the course is almost always taken by the former and is required for the latter, so it has a built-in clientele), and has been offered every fall semester for decades. I have taught the course seven times and will continue to teach it for at least the next three offerings, so you can count on me participating in both the Fall 2017 and Fall 2018 semesters using the *Abstract Algebra: Theory and Applications* text. I read through much of the text online, and it would be a good fit for our students. I would strongly prefer to be a standard or data-intensive participant, as I feel it would improve the course the most, but I would be open to being a control section participant.

Math 325 has been taught in a very traditional way for decades. I have made minor tweaks over the years, but I would welcome the chance to infuse the class with new techniques and bring it into the 21st century, especially with the number of education majors in the course.

I have very limited experience with Sage (through a one-hour introductory workshop from Jessica Striker at North Dakota State University) and no experience with SageMathCloud. I have used Mathematica in a variety of courses in mostly limited ways – for example, to provide visualizations or to perform some computations – and have also used LPSolve to solve linear and integer programs in our Operations Research course.

Concordia College is a 4-year private liberal arts college with about 2,100 students and about 100 mathematics majors (a high percentage of our student body). As I mentioned, Math 325 has had very healthy enrollments, and Concordia has a strong tradition of females majoring in mathematics that goes back over 100 years. The course enrollments for Math 325 during the past four years that I have taught it are:

Fall 2015: 23 total students (10 females)

Fall 2014: 20 total students (12 females)

Fall 2013: 16 total students (8 females)

Fall 2012: 20 total students (13 females).

I also want to mention that other members of my department are excited about my application and would hope to incorporate Sage and other techniques that I learn through the program in their courses. While they are not a part of this official application, some other classes that we would consider are Linear Algebra and Differential Equations.

Again, I am very excited that a program like this is being developed and I would love to be a part of it. My students would benefit so much from learning algebra in this way. I would fulfill all of the requirements of the program carefully and promptly. I hope that you will accept my application, and please do not hesitate to contact me if you have any questions.

Sincerely,



Daniel P. Biebighauser
Associate Professor of Mathematics
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CONCORDIA COLLEGE

Department of Mathematics

December 21, 2015

Prof. Beezer and the UTMOST team:

I am aware of and fully support the application by Dr. Daniel Biebighauser of Concordia College for an UTMOST Project grant. We are currently using Durbin's text in our abstract algebra course, which Dr. Biebighauser teaches every fall, so this grant would provide a good impetus to change to the open source textbook *Abstract Algebra: Theory and Applications*, and to make extensive use of Sage in this course. We will definitely be able to schedule Dr. Biebighauser to teach this course in both Fall of 2017 and Fall of 2018 to implement the change and complete the project.

Sincerely,



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