

December 22, 2015

Dr. Robert A. Beezer
Mathematics and Computer Science
University of Puget Sound
1500 N. Warner
Tacoma, Washington 98416-1043

Dear Professor Beezer:

Please accept this letter in application to your research project, UTMOST. I learned about your proposal in an e-mail from Professor Thomas Judson, who encouraged those who have used his abstract algebra textbook to apply. I am very interested in this work and hope you will select me as a participant.

My teaching experiences include many sections of both linear and abstract algebra. In my previous position, as a visiting professor at Truman State University, I taught two sections of a course called Matrix Algebra, which was intended for computer science majors. I adopted the textbook, *Linear Algebra via MATLAB* by Steven Leon. The setting was unusually good for such a class since the room was outfitted with computers at every desk making it easy to have students solve computer-based problems using MATLAB software.

Since joining the faculty at UW Oshkosh I have taught the introduction to linear algebra course six times. Mainly I have used the book, "Linear Algebra and its Applications," by David Lay. Students make matrix calculations using the TI-84 graphing calculator. One semester I incorporated on-line exams using the Pearson package, MyMathLab. This was worthwhile, but too expensive for some students. I have also incorporated several types of student-centered activities such as posters on applications of linear algebra, group-work problems about vector and plane geometry, and arrowgrams, which are a type of puzzle I created which uses linear algebra and directed graph labeling to reveal secret messages. I have also taught a senior-level abstract linear algebra course twice using Serge Lang's book, *Linear Algebra*.

My department offers two abstract algebra courses: Introduction to Group Theory and Introduction to Ring Theory. I have taught both of these courses three times apiece. When I first taught them, I used *Contemporary Abstract Algebra* by Joseph Gallian. The author's web page has some online group theory activities that I had my students complete. I also prepared spreadsheet projects using MS Excel that my students used to solve problems involving the division algorithm, modular arithmetic, and check digit schemes. Subsequently, I switched to, *Abstract Algebra: Theory and Applications* by Thomas Judson. In these classes I made extensive use of group work through problem-solving activities. I also had students solve and prepare their own arrowgrams using modular addition.

I am scheduled to teach Introduction to Ring Theory in the spring semester of 2017. I would be happy to teach this as a pilot course for the UTMOST Project. Introduction to Group Theory will be offered in the spring semester of 2019, which I could possibly teach again. My department has not yet made teaching

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assignments for the 2017-18 and 2018-2019 academic years, but I spoke with my department chair and he expressed a willingness to work with me so that I could be assigned classes to participate in the UTMOST Project. We offer Introduction to Linear Algebra every semester, so it is possible that I could teach it twice during the project period.

My school, the University of Wisconsin Oshkosh, is the third largest university in the state with a total enrollment of around 14,000 students. It is a public institution with a focus on undergraduate education. There are some master's degree programs and about 1,300 graduate students. My department has a small graduate program with coursework offered through both Mathematics and the College of Education that leads to an MS degree in Mathematics Education.

At UW Oshkosh, math majors can declare a math major with no emphasis or an emphasis in statistics or in secondary education. Students who take Introduction to Linear algebra are typically majoring in mathematics, computer science, chemistry, or business. The prerequisite course is two semesters of calculus. It is not uncommon for one or more local high school students to take it for college credit.

Students in my department's upper level undergraduate algebra courses are also typically majoring in mathematics, computer science, chemistry, or business. However, students who are not math majors almost always have a minor in mathematics. Abstract algebra courses have dual credit options, so that graduate students in our MS in Mathematics Education program can take them for credit. Graduate students have to complete additional course requirements. Typically, my graduate assignments are to write a paper or give a presentation based on journal articles.

I believe my experiences teaching with technology qualify me to make positive contributions to your project. In the past, my students have been required to complete projects using MATLAB, MS Excel, Minitab, and SPSS. I have recently started to incorporate WeBWorK and have chiefly used it for homework assignments in my trigonometry, finite math, and second semester calculus classes. For the last five semesters I have directed an undergraduate student project that involves writing software that enables users to prepare graph and directed graph diagrams.

On a final note, I should mention that there is ample computer access on campus for the proposed activities. Most of my classes meet in Swart Hall, which has a dedicated computer classroom as well as a student computer lab. Regular classrooms have networked computers with internet, a projector, and a document camera. Every course is automatically provided a limited access web page under D2L.

Thank you for your consideration.

Sincerely,

Dr. Kenneth L. Price
Professor of Mathematics
University of Wisconsin Oshkosh



December 22, 2015

Dr. R. A. Beezer
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Dear Dr. Beezer:

Dr. Ken Price has informed me of his intention to apply for the UTMOST Project. In the spring 2017 semester he is scheduled to teach abstract algebra and plans to propose this as a pilot course for your project.

To participate in the 2017-18 and 2018-2019 academic years, Ken would need to teach a course in linear algebra or abstract algebra using open source textbooks. No teaching assignments have been made for the 2017-18 and 2018-2019 academic years. However, I am aware of the program activities and requirements. Every effort will be made to schedule the necessary courses during the requisite semesters.

Sincerely,

Dr. K. L. D. Gunawardena
Mathematics Department Chair