

Application to Participate in UTMOST

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Please accept my application to participate in the UTMOST program. I have been using Sage to teach a variety of mathematics courses for several years and I am enthusiastic about the opportunity to participate in UTMOST, attend Sage Edu Days Workshops, and expand my use of Sage in the classes that I teach.

This statement addresses my experience using Sage and the schedule for teaching linear algebra and abstract algebra at Worcester State University. In addition to this letter I am providing a letter from my department chair expressing his interest in scheduling me to teach linear algebra and abstract algebra during the 2017–2018 and 2018–2019 academic years.

1 Teaching and Availability

Linear Algebra is offered every Fall semester at Worcester State University. Abstract Algebra is offered every Spring semester. My department chair has agreed to do his best to schedule me to teach Linear Algebra in Fall 2017 and/or Fall 2018 and Abstract Algebra in Spring 2018 and/or Spring 2019. Worcester State University is a small school. There is usually only one section of each of Linear Algebra and Abstract Algebra during each academic year. The only way a control section could be offered is by teaching a control section during, say, the 2017–2018 academic year and a Sage section during the following academic year.

I taught one semester of Linear Algebra in Fall 2013. I have never taught Abstract Algebra. However, my background is in number theory, I often teach elementary number theory at Worcester State University, and I am enthusiastic about teaching Abstract Algebra in the future.

Before coming to Worcester State University I used Mathematica in a variety of calculus courses. For example, I used Mathematica and Excel to teach MATH 103 (Math Modeling and Introduction to Calculus) and MATH 104 (Calculus I) at the United State Military Academy (West Point) during the 2007–2008 academic years.

I started using Sage in 2007 while at the University of Washington. In June 2011, I participated in the MAA PREP Sage Workshop (online) run by Karl-Dieter Crisman and Jason Grout. As a result of that I worked with the Worcester State University IT department to create a Sage server for the university community. Since then I have used Sage extensively

in my multivariable calculus course. I designed a series of Sage assignments and a final project designed to teach my students Sage as it applies to vector algebra and multivariable calculus. I also use Sage regularly in my multivariable calculus classroom to illustrate lesson topics. In Fall 2015 I switched to using SageMathCloud in multivariable calculus.

I have used Sage to a lesser extent in some of my other classes at Worcester State University including precalculus, calculus 1 (differential calculus), calculus 2 (integral calculus and infinite series), linear algebra, and number theory. In these courses I occasionally use Sage to demonstrate a concept in the classroom (like Newton's method in calculus 1 or modeling with a periodic function in precalculus) or I give a few short Sage assignments (for example an RSA problem in number theory or integrals to evaluate in calculus 2). I plan to give my students a few Sage assignments using SageMathCloud when I teach elementary number theory in Spring 2016.

2 Description of Worcester State University

Worcester State University is a public 4 year liberal arts and sciences university in Worcester, MA. We have about 4400 undergraduate students. The mathematics department has about 50 math majors and about 50 math for elementary education majors. Our Linear Algebra classes usually have 20–25 students and Abstract Algebra classes have about 15 students. We typically offer one section of Linear Algebra each Fall and one section of Abstract Algebra each Spring.



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December 23, 2015

To whom it may concern,

I would like to take this opportunity to voice my support for Susan Schmoyer's inclusion in the UTMOST program. As chair of the Mathematics department at Worcester State University, I can attest to the fact that Linear Algebra will be offered in the fall semester of 2017 and 2018, and Abstract Algebra will be offered during the spring semester of 2018 and 2019. If Professor Schmoyer is admitted to the program, I can promise that I will schedule her to teach one of these classes during AY 2017-18 or 2018-19.

Sincerely,

Mike Winders

Professor and Chair, Math Department

Worcester State University