1046-15-1841   **Jason Grout*** (`grout@iastate.edu`), 396 Carver Hall, Department of Mathematics, Iowa State University, Ames, IA 50011. *Sage in an early-graduate research course investigating the minimum rank problem.*

This talk will discuss the use of Sage in a course designed to involve first and second-year graduate students in research. In this case, none of the students or the professor had had prior experience with Sage. Students collaborated using Sage and the included NetworkX package to investigate the minimum rank problem in combinatorial matrix theory. Various features of Sage (e.g., the included NetworkX package, the N.I.C.E. graph automorphism functionality, the online notebook interface, Cython integration, etc.) made Sage more useful than other commercial math software that was tried. In addition, the free nature of Sage made it more desirable for sharing research with other mathematicians since the mathematicians working on the problem do not all have access to the same commercial software. The results and source code of the research will be submitted as a paper soon. After the course, several students are continuing to use Sage in their other courses and one is planning to use Sage heavily in her masters thesis. (Received September 16, 2008)