

# PREP proposal modifications

Sage PREP team  
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## Introduction

This workshop will help mathematics faculty become comfortable using the Sage mathematics software in the classroom, regardless of experience level or curriculum. Sage is useful to faculty teaching a wide range of classes, with comprehensive functionality (for instance, including R for stats, GAP for group theory, Maxima for symbolic computation, Numpy/Scipy for scientific computation, etc.). The unique online notebook interface makes experimentation and collaboration easy with hardware from cell phones to desktop computers; since Sage is freely available, faculty and students from diverse institutions can easily use Sage.

By the end of the summer, each participant will have two or three good worksheets ready for immediate use in a course of their choosing. Ideally, at least one of these will be entirely of their own creation, while others may be modifications of currently existing material. Participants will commit to sharing their improved versions more broadly, after a period of classroom testing.

The workshop will be online, split into three parts.

## Part 1, Late May (22 May?)

The first part will be a single day, introducing participants to working with Sage, making them aware of resources for help (tab-completion, reference manual, “sage-support” Google Group, Sage wiki), learning to navigate the notebook and generally becoming knowledgeable enough to start experimenting on their own, while also knowing where to go for help.

We would like to use a Saturday for this session to accommodate quarter-system schools.

## Part 2, Early to Mid June

Several weeks after the introductory session, the second portion will be an intense two days of activity designed to make participants accomplished and comfortable with the many facets of using Sage via a public notebook server. One highlight of this will be learning to use and create “interacts,” using Sage’s interactive demonstration framework that allows a student to easily use familiar buttons, sliders, and other controls to explore a problem or concept.

For this portion, the organizers will be in the same physical location so that they may adjust the presentations and activities as needs may dictate.

The dates for this part are a little more flexible to accommodate MAA needs and quarter versus semester schools; we suggest the second or third week of June.

## Part 3, Early August

The third portion will be a final day to review summer projects and answer questions, with an emphasis on sending participants out prepared to use Sage in their classrooms.

Depending on interest and time, we may use this final day to also introduce other topics relevant to using Sage in the classroom. These may include setting up a campus Sage server, authoring tests, course notes, and textbooks easily using Latex and Sage, etc.

### **During the Summer**

We will set up a special mailing list for participants to encourage collaboration and sharing insights about using computer algebra systems in the classroom.

In the time between the three sessions, we will hold scheduled office hours online. Each organizer will be scheduled for, on average, one office-hour session each week. Participants can use these office hours to receive feedback on their summer projects, get help designing course materials to use Sage, or request new features in Sage. Help is also available at any time through Sage's "sage-support" and "sage-edu" Google Groups or Internet Relay Chat (IRC).

### **Follow-up**

We will follow up with participants at the January 2011 Joint Meetings and online to discuss the school term in which they used Sage and how to improve the classroom using mathematics software.

Sage has a strong existing infrastructure to support new users, including several very friendly and supportive email lists (one devoted specifically to using Sage in education) and a wiki. We expect participants to actively use the Sage support lists for continuing support and to participate in the Sage educational issues email list with pedagogical advice or questions. Finally, as instructors start evaluating feedback from their classroom experiences, we will ask participants to contribute their most successful resources to an organized collection of public Sage resources.