

MATH 8850: Computational Mathematics VRG

The object of this course will be to facilitate those students who are currently using, or anticipate using, computation to support their research. The emphasis will be on small working groups, each group engaged with either a single project collaboratively, or on similar projects in parallel. Students should either come with their own coding projects of interest, or have a desire to learn a particular set of skills during the semester (some suggestions could be taken from below).

Specific areas of focus during our meetings will likely be taken from the following, based on student needs and interests:

- specific support with the use and installation of mathematical software packages (SAGE, MatLab, Mathematica, pari, Macaulay2, R, ...);
- coding technique and style (algorithms, memory and speed issues, recursion, datatypes and abstraction, objects);
- coding strategies, for example, working with larger projects over long periods of time;
- tools for collaboration, such as version control and task assignment;
- using computing resources available at UGA such as the 6th floor computing lab and zcluster at The Georgia Advanced Computing Resource Center (GACRC) for extra computing power;
- coding in specific languages (C/C++, python/jupyter, ruby, javascript, FORTRAN, ...), compiling and running programs on different platforms.