

# Sage Introduction & Setup

## What it is:

Sage is free, open-source, comprehensive mathematics software built on Python. We will have three to four group Sage programming labs spread throughout the course where you will put into practice the topics studied in class.

## Where to get it:

You can install a local copy from <http://www.sagemath.org/> or make use of one of the many servers running Sage Notebook. Your labs will be posted (and turned in) on the SageMathCloud <https://cloud.sagemath.com/>.

Your UW email account has likely already received an invitation. You can either follow the steps in the email invite or follow the “Getting Started with SageMathCloud” directions posted <https://cloud.sagemath.com/help>. The directions have been copied below:

1. Navigate to <https://cloud.sagemath.com>. Click on “create an account”, then enter the first name, last name, email address, and password for the new account you would like to create, and read and agree to the terms of usage. You may change your email address, password, etc. at any time later, and also reset your password in case you forget it.
2. You will be directed to your home directory and you’ll see a project named TCSS 321. Click on “TCSS 321” and you will find a .zip file for both “Demos” and “Lab0” already available.
  - The “Demos” file is a copy of the Sage I’ll run in class during lectures.
  - “Lab0” is your first lab introducing Sage and some of it’s functionality to you.
3. Click on a file of interest and select “Extract Files...”
4. Select the File folder icon above to return to your project with the extracted files that can be edited.

## Labs:

Labs are to be completed in groups of three and only one copy will be reviewed. The labs start off without a great deal of freedom while you get used to the new programming language and by the end of the course you will be writing your own (much more complex) Sage code. Feel free to create new worksheets and experiment with resources on the internet. Some useful (and admittedly mathematical) links are posted below.

## How to turn labs in:

1. Make sure your group names are on the worksheet!
2. Return to the directory with the Lab in it.
3. Select the button with “i” on it that appears to the left of the file.
4. Select “Move”
5. In the second textbook, change the name from “SageLabn” to “SageLabnFinalCopy”.
6. Click “Move File”

## Notes

- All sage labs for the class are owned by Ruth Vanderpool and shared with you. In this way, I can access your work without you having to turn anything in.
- Make sure you write the names of your group members on the worksheet.
- If you edit your Lab so much that you’d like to begin again, simply delete your current version and re-extract the files from the appropriate .zip file.
- Beware of ‘blank space’. Python uses blank space for such things as nested loops. If you get an error in your code, make sure that you didn’t indent something accidentally.

## Sage Resources & Cool stuff:

- <http://wiki.sagemath.org/quickref>
- <http://wstein.org/mathsoftbio/history.pdf>
- <http://wiki.sagemath.org/interact>