

# 2014-04-30.sagews

April 30, 2014

## Contents

<b>1</b>	<b>Math 480b Sage Course</b>	<b>1</b>
1.1	Git . . . . .	1
1.2	April 30, 2014 . . . . .	1
1.3	Git Tutorial part 1 . . . . .	3
1.3.1	Starting a new open source project using SageMathCloud and GitHub . . . . .	3
1.4	Git Tutorial part 2 collaborate . . . . .	4
1.5	Git Tutorial - part 3 branching . . . . .	4

## 1 Math 480b Sage Course

### 1.1 Git

### 1.2 April 30, 2014

Screencast: <http://youtu.be/8z68hQ2CC-Q>  
Plan

- Questions
- Homework reminder grading of hw4 due Friday hw5 due Friday every student in the class did their grading of hw3 and also did hw3 good job!
- Git it will take today and Friday to get through all of this. Next week will be how to do Sage development. <http://www.sagemath.org/doc/developer/>

NOTES:

- Ive been doing tons of upgrades to SageMathCloud. FYI.
- I like <http://git-scm.com/book>

```
%md
## Git Tutorial -- part 1
### Starting a new open source project using SageMathCloud and GitHub

I will do this all in a *brand new SageMathCloud project*.
```

- Create a new git repository: make a directory, then run 'git init' in \

```
mkdir gauss
cd gauss
git init
```

- Create a file, add it, commit.

```
<create a minimal Gaussian rational file gauss.sage>
git add gauss.sage
git status
git commit -a -v
# fix issues with identity...
```

- Change the file, look at what has changed, commit.

```
<change the file>
git commit -a -v
```

- Make changes then throw them away

```
<make some changes>
git diff --color
git checkout gauss.sage
cat gauss.sage
```

- Checkout early version

```
git checkout <SHA1 HASH> gauss.sage
cat gauss.sage
get checkout HEAD
cat gauss.sage
```

- Create a Github account

```
https://github.com
```

- Create a corresponding repository on github

```
https://github.com/Math480bSageCourse/gauss
```

- Push our repo there.

```
ssh-keygen
open ~/.ssh/id_rsa.pub # copy this to github
git push
```

- Clone it from Github to somewhere else

```

    cd ~
    git clone ... gauss-clone

- Save some changes

    cd gauss-clone
    open gauss.sage # edit and save
    git commit -a -v
    git push

- Look online and see the commits

- Pull into our original repo

    git pull

```

## 1.3 Git Tutorial part 1

### 1.3.1 Starting a new open source project using SageMathCloud and GitHub

I will do this all in a brand new SageMathCloud project.

- Create a new git repository: make a directory, then run git init in it.  
mkdir gauss cd gauss git init
- Create a file, add it, commit.  
create a minimal Gaussian rational file gauss.sage git add gauss.sage git status git commit -a -v fix issues with identity...
- Change the file, look at what has changed, commit.  
change the file git commit -a -v
- Make changes then throw them away  
make some changes git diff --color git checkout gauss.sage cat gauss.sage
- Checkout early version  
git checkout SHA1 HASH gauss.sage cat gauss.sage get checkout HEAD cat gauss.sage
- Create a Github account  
<https://github.com>
- Create a corresponding project on github  
...
- Push our repo there.  
ssh-keygen open ~/.ssh/id\_rsa.pub copy this to github git push ...
- Clone it from Github to somewhere else  
cd git clone ... gauss-clone
- Save some changes  
cd gauss-clone open gauss.sage edit and save git commit -a -v git push

- Look online and see the commits
- Pull into our original repo  
git pull

## 1.4 Git Tutorial part 2 collaborate

(I encourage everybody with a laptop in class right now to do EXACTLY this right now!!)

- As a different user (williamstein) fork the above gauss project.
- Clone it into my private teaching project.
- Make changes, commit, push.
- Send a github pull request.
- Look at our original project.

## 1.5 Git Tutorial - part 3 branching

- make a new branch of our project  
git branch git branch dev git checkout dev super lightweight/fast/efficient, even if project is huge
- make some changes and commit them
- push them to github as a new branch

Explain how to figure out how to do this by doing a Google search on push new branch to remote and reading Stack overflow. Note that this search doesnt have the word git in it, but the entire first page of results is git-specific, even though one could do the same search for other similar software such as mercurial.

- switch back to the original master branch, and merge the changes from the dev branch.