Course Outline

ASTR288P

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2017/09/01

UMCP / NASA GSFC

About Me

- Office: ATL 0251A
- Office hours: Friday 1PM-2PM (before class)
- Always confirm with be before coming for office hours!
- astro email: sgriffin
- I'm actually based at NASA Goddard, so I'm not around on other days.

Course format

- Homework:
  We have them, they will be assigned as the course progresses ("natural stopping points").
  Generally due at the start of the following class.
  There will be time to work on them in-class.
- End-of-term project and presentation in place of a final written exam.

Resources

Books: Is that like the Internet but made out of a tree?

Online:

- Wikipedia
- `http://www.stackoverflow.com` Any Questions
- `http://www.codecademy.com` Python, Git, ...
- `http://tutorialspoint.com/cprogramming` C language
- `http://projecteuler.net` Challenging Problems
- `http://rosettacode.org/wiki/Averages/Arithmetic_mean`

What we'll cover (more advanced topics)

- UNIX:
  - Shell (we will use **bash** but others exist), shell scripting
  - File system (/, /usr/bin, $HOME, etc.)
  - Window managers, desktop environments
  - Editors (**emacs**, vi, gedit, pico, **sublime**, many others) – people have strong opinions but I do not!
  - Base commands (**cd, mkdir, ls, ssh**...)
  - Tools (**git**, gcc,)
- Scripting
  - Python
  - ipython
  - Jupyter
- Word processing with LaTeX:
  - Not included last time this course was taught but I think it's important to learn early on.
  - This document produced using LaTeX.

What we'll cover

- Some Object Oriented Programming (OOP)
- Compiled code
  - C/C++, Makefiles
  - FORTRAN is a thing that exists but we won't use it.
- Data analysis
  - Compiling and running analysis code
  - Analysis and plotting

What we probably wont cover

- Machine learning
- Multi-threaded / parallel programming (OpenMP, MPI, CUDA)
- ...

Hardware

Lab machines:

- Master: ursa.astro.umd.edu
- Nodes: lab001, lab002, ... lab013
- Printer: labs.astro.umd.edu

Virtual machines:

- **virtualbox**
- vmware

Your own machine:

- Linux (Ubuntu, Redhat, Fedora, Mint, debian, gentoo...) – You can dual-boot if you want.
- Mac OS X
  - You need Xquartz installed so certain features will work.
- Windows – Not recommended for this class
  - putty, Windows10 bash, VNC viewer
  - Probably easier just to run a virtual machine (this is what I do!).