VOX CHARTA, PROJECT REPOS, AND MCMC

VOX CHARTA

Fridays from Oct. 7 Callie, Sheridan, Stephen
Mondays from Oct. 10 Josh, Patrick, Gibson
Tuesdays from Oct. 11 Lucas, Michael H, Corey, Mark
Wednesdays from Oct. 12 Chase, Kristy, Erin
Thursdays from Oct. 13 Charlie, Sten, Michael P

- Create a voxcharta.org account using onyen@email.unc.edu as your email

- Select "UNC-CH Galaxies & Cosmic Structure" as your affiliation

- Go to calendar icon in right column and click on your day to vote for abstracts

- Choose only abstracts that are relevant to galaxy evolution or astrostatistics

- If an abstract is specifically relevant to your project, bring it to your team's attention and consider reviewing it for one of your presentations

PROJECT REPOS

- Have your master branch master create a new repository (NOT a new "project") inside the galastrostats organization

- Make sure it's private if you're using any proprietary data

- Protect the master branch following instructions in git tutorial, and test it to understand how it works (it _should_ protect against even the MB master)

- Add professor and TA as well as all team members and create a branch for each named by their names or onyens

- Each team member should clone the repo and work only in their own branch, periodically pulling the master branch and merging it into their own branch (NOT vice versa)

- When a team member has a code contribution fully ready, then he/she can ask the MB master to work together to merge it into master – only after all recent updates to master have already been merged into that team member's branch

MONTE CARLO MARKOV CHAIN (MCMC)

- issue: likelihood grids take too long to evaluate for problems with many model parameters (common!)

- MCMC algorithms solve this by "magic" ability to sample likelihood calcs in different regions of the grid _in proportion to the relative likelihood in that part of the grid_ (Ivezic+ section 5.8)

- the "magic" is not perfect and has ill-understood statistical properties – it is essential to test for convergence

- three python MCMC codes reviewed in the van der Plas tutorial you used before (http://jakevdp.github.io/blog/2014/06/14/frequentism-and-bayesianism-4-bayesian-in-python/):

  - ❏ emcee: the MCMC Hammer

  - ❏ pymc: Bayesian Statistical Modeling in Python

  - ❏ pystan: The Python Interface to Stan (google "pystan hierarchical bayesian modeling" for tutorials on HBM)

- hammer overuse: use direct integration as a check whenever possible