Week 1

- Broad goal: Fix code.
  - ☑ Use less filtered dataset
    - Now at 30% with 39 taxa.
  - ☑ Make graphs of parameter values at each iteration
    - Did a lot of graphs, histograms and changes of betas between loops. Need to do final after changes are made.
  - ☑ Try stepwise update
    - Using .1 as a constant. Still doesnt work, so likely a more complicated approach would not be helpful.
  - ☑ Fix problem where R inverse and others not updating in beta loop
  - ☑ Change R-inv function to depend on alpha instead of X and beta since already calculated.
  - ☑ Flip order of beta and phi loops.
  - ☑ Look at residuals in each iteration. (in phi step)
  - ☐ Keep something constant through loop and/or try using identity for R.
  - ☑ Try different dataset? Maybe simulated one from previous paper.
    - Same troubles
  - ☐ Distance matrix argument to dist?
    - Need both forms, so may or may not be useful
  - ☐ Check if phi is correct now, and see how is used
  - ☑ Figure out large alpha problem
    - Seems the + and one loop beta fixed this?
  - ☐ Try a different covariate?
  - ☐ Figure out why geem code uses + instead of - on update
    - I think + is correct. At least it converges.
  - ☐ Identify which covariate is causing the trouble.
  - ☐ Try removing the single OTU that seems to be contributing to problem.
  - ☐ Save everything to list correctly to look at later.
    - Saving rho, omega, phi, beta, diff (abs), num iterations
    - Also do residuals.
  - ☐ Plot lists
  - ☐ Remove scalar update.
  - ☐ Write up algorithm for Yuan to go through? Ask to check.
  - ☐ Final run through before meeting of graphs and numbers