Lab Schedule:

January 26- Lab Group A
February 2 - Lab Group B
February 9 - Lab Group C

February 16 - Lab Group A
February 23 - Lab Group B [Lab #1 Due]
March 1 - Lab Group C

March 8 - Lab Group A
March 15 - Spring Break!
March 22 - Lab Group B
March 29 - Lab Group C

April 5 - Lab Group A [Lab #2 Due]
April 12 - Lab Group B
April 19 - Lab Group C

April 26 - Open Lab for Anyone [Lab #3 Due]

Networks Lab #1 Assignment
(due Feb 23rd on Courseworks > Assignments and a hard copy in class)

1. Develop a hypothesis about how some ego-network measure (e.g., degree/size, density, diversity, average-level of alters, homophily, structural holes, or brokerage) may be related to some other variable of interest.

2. Explain why you think these two variables should be related.

3. Tell me about your variables. What is your dependent variable? What are your independent variables? How are they coded? How are they recoded? How are the calculated, if appropriate?

4. Present your initial results from your first few models. What do they indicated about your hypothesis?

5. Consider alternate specifications of your variables (i.e., recodings of various kinds). Consider interactions among your variables.

6. And give your best conclusion as to whether your initial hypothesis held up - and if not, why not.

QMSS- Networks Lab Report #2 (due Tuesday, March 29th)

Find a complete social network, preferably one with at least some attributes about the nodes with it. (If you simply have a social network, but no real attributes, you will need to pick an additional network to compare that first one to.)

1. Describe the social network(s) to me, in terms of how it was collected, what it represents and so forth. Also give me basic topography of the network: the nature of the ties; direction of ties; overall density; and if attributes are with the network, the distribution of the categories and variables of those attributes.

2. Calculate degree centrality (in- and out-degree, too, if you have such data); closeness centrality; betweenness centrality; and eigenvector centrality. Correlate those measures of centrality. Highlight which nodes are most central and least central, along different dimensions.

Now, do 1 of the following, but not both:

3a. If you have a network with attribute data, then state some hypothesis about how an attribute may be related to some (or all of the) measures of centrality. Explains why you think these two variables should be related.

3b. If you don't have a network with attribute data, then pick another network to compare your first network against. Calculate all of the same measures as above for Network #2. Consider if normalization is appropriate for any of these measures. Then state some hypothesis about why some (or all of the) measures of centrality in one network will be the same or different from the second network. Explain why you think these two networks should be similar or different.

4. In either case, when you are done above, then considers alternate specifications of your variables and codings and decisions and models. What would you want to consider changing and why. If you can, report on what are the consequences of those changes?

5. Lastly, give your best conclusion as to what you learned from your analysis. Did it make sense, given your initial expectations? Why? Why not?

QMSS- Networks Lab Report #3 (due Tuesday, April 26th)

Find a complete social network, preferably one with at least some attributes about the nodes with it.

1. Describe the social network(s) to me, in terms of how it was collected, what it represents and so forth. Also give me basic topography of the network: the nature of the ties; direction of ties; overall density; and if attributes are with the network, the distribution of the categories and variables of those attributes.

2. Run the Girvan-Newman community detection algorithm. Then run the random walk community detection algorithm.

3. Tell me how many groups each algorithm finds. Analyze how similar the two partitioning algorithms are in terms of putting nodes into groups with each other.

4. Visualize the network (either in R or Gephi), coloring the nodes by either Girvan-Newman grouping or the random walk grouping.

5. Tell me anything else about whether the partitioning makes sense, based on attributes or who the nodes are, and so on.