**Social Network Analysis Homework Assignment**

**IT515R: Web and Social Media Analytics**

**Winter 2012, Professor Derek L. Hansen**

**Objectives:**

After completing this assignment and the related readings you should be able to (a) explain the foundational concepts of social network analysis, (b) use NodeXL to analyze and visualize social networks, (c) determine the quality of social network visualizations and identify ways of improving them, and (d) use social network analysis to examine social media interactions.

**Activities:**

This is an individual assignment. You will work on the assignment over a 3-4 week period, sharing and getting feedback from other students on draft visualizations and ideas. The final visualization and description will be posted to the NodeXL Graph Gallery for the world to see. If the data includes confidential information you should anonymize it and choose not to share the dataset (i.e., just share the image and description). If you do not want to post your final assignment publicly to the Graph Gallery speak with me and we can make alternative arrangements. I do encourage sharing it broadly though to help others outside of the classroom benefit from your insights. All grading will be private (e.g., I won’t leave grades or comments on your graph gallery submission).

You can choose any topic and data source you want to analyze, including those you create or those imported using the NodeXL import wizard. The only stipulation is that it should deal with social media network data. Your task is to create a network visualization (or multiple visualizations) and accompanying analysis that provides an important insight into the phenomena you are studying. You can play the role of a researcher, trying to understand a scientific question about the nature of connections in a certain context, or you can play the role of a marketer, community administrator, or social media advocate for an organization trying to gain an actionable insight.

**Submission & Grading:**

Your final submission, sent to the NodeXL Graph Gallery will include the following:

**Name:** Make sure your name is listed with the image (or a pseudonym you provide to me)

**Tags:** When uploading the file to the graph gallery it will ask for tags. Include “IT515R”.

**Visualization(s) (40% of grade):** The quality of the visualization will be evaluated based on the principles we discuss in class. For example, is an appropriate layout used (and was it fine-tuned to remove unnecessary edge crossings etc.)? Were visual properties and labels used effectively to highlight the major points? Should groups have been used and if so, were they used effectively?

**Description (60%):**

A description should accompany your visualization(s) including the following parts:

**Image Caption (10%):** A short, caption that describes (but does not interpret) all of the core elements of the visualization. For example, it should describe what the network is showing (e.g., the most recent 500 people who used the hashtag #byu on Twitter), what the edges and vertices represent, what the visual attributes mean (e.g., larger nodes have higher In-Degree), and mention the layout algorithm and/or clustering algorithm used (if applicable).

**Goals of SNA Analysis (10%):** What is the purpose of the analysis? What were you trying to learn? Why is it important?

**Data (10%):** Add any details about the data collection that you did not include in the caption. For example, you may discuss things like limitations of the dataset (e.g., it only includes the most recent X…), how it was collected, if it is a special type of network (e.g., multiplex or multimodal), and when the data were collected.

**Metrics (10%):** Include details on some of the important metrics related to the message you are trying to convey. These may be overall network metrics, group network metrics, or vertex-specific metrics. They may also be non-network metrics related to the dataset: e.g., top 10 most popular YouTube videos + the number of times they were watched. They should directly relate to the core message(s) you are trying to convey. Don’t add extra detail just because.

Interpretation:

**Interpretation (20%):** Describe the insights you have gained from the visualization and/or metrics. This section should answer the question “so what?” as it relates to your analysis and visualization. How do you interpret the various metrics? What do they suggest about the network? What have you learned or not learned from it? What would you do differently (as a marketer, researcher, community administrator, etc.)? Make sure you accurately interpret the metrics and visualization and draw conclusions appropriately.