Course Notes for Social Networking

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Chapter 1

Prerequisites

This is a set of *course notes* for SOCIOLOGY 3412: Social Networking. All examples are written in the R Statistical programing language. It is recommended that you use R-Studio as your IDE for this course as it is the one that will be demonstrated in lecture.

1.1 R

R is a statistical programming language that is popular in industry and acadamia. It is open source and has very powerful tools for analysis and visualization. I recommend running yourself through an online tutorial before the course begins. A popular one is run by *DataCamp* and is free and can be found here. However, there are a number of alternatives, all of which can be found on google.

1.2 STATNET and igraph

We will be using the following packages from the STATNET project:

```
install.packages('network')
install.packages('ergm')
install.packages('sna')
install.packages('EpiModel)
```

We will also on occasion make use of the **igraph** package:

```
install.packages('igraph')
```

1.3 networkdata and devtools

We will occasionally use packages created by the author and installed via github. To do this you will first need to install **devtools**:

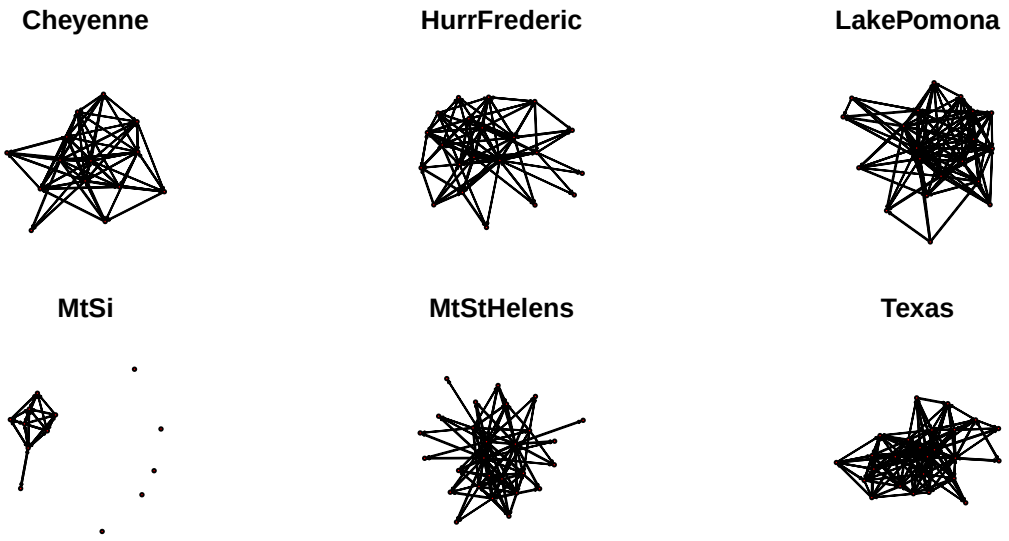
```
install.packages("devtools")
```

Then you can install the **networkdata** package and other packages created for this course as needed, e.g.,

```
library(devtools)
install_github("zalmquist/networkdata")
```

Chapter 2

Networks and Network Thinking



2.1 Overview

Network science and social network analysis provide both a theoretical and methodological foundation for understanding our social world. **?** explains the social network field as follows:

> The social network field is an interdisciplinary research program which seeks to predict the structure of relation- ships among social entities, as well as the impact of said structure on other social phenomena. The substantive elements of this program are built around a shared chore of concepts and methods for the measurement, representation, and analysis of social structure. These techniques (jointly referred to as the methods of social network analysis) are applicable to a wide range of substantive domains, ranging from the analysis of concepts within mental models (**?**,**?**) to the study of war between nations (**?**)

2.2 Introduction to Network Concepts

To begin our journey into the nature of social networks, we first must define what a **relationship** entails.