***Small world graphs (Watts Strogatz graphs)***

*Goal*:

To explore and understand the properties of Watts Strogatz small world graphs.

*Relevant research (from related journals): - Will update more tomorrow*

Previous works inspiring this method include:

1. Random graphs book by Bela Bollobas - Look at small subgraph section with information on balanced vs arbitrary graphs and subgraphs, and using the poisson approximation within this framework.
2. Six Degrees of Separation - the play by John Guare - link this to the science behind this phenomenon

*Summary:*

Invented as a means of exploring the connection between regular and random graphs. Original paper defines the process as “rewiring” of normal networks. Known as small world due to the tendency to exhibit ‘six degree of separation tendency’

*Network Characteristics:*

Consists of n nodes, each with k neighbors connected in a ring topology, with a specified probability p of rewiring each edge. After a ring is created over the specified number of nodes, each node is connected to k -1 neighbors. An edge rewiring process then begins where the edges in each nth ring are rewired with the random probability, p.

*Citations:*

1. Duncan J. Watts and Steven H. Strogatz, Collective dynamics of small-world networks, Nature, 393, pp. 440--442, 1998.
2. Coupled Oscillators and Biological Synchronization : Same author
3. Random graphs book, Bela Bollobas
4. Six Degrees of Separation , by John Guare