In Network Science\*, the study of network connections and how they develop, there are several predictive algorithms designed to model a network mathematically. There is a rich history to this dating back hundreds of years, with mathematicians, physicists, and even psychologists creating models to represent different types of networks and how they grow and connect.

These mathematical algorithms or equations can be difficult to visualize, and so they are usually represented by Random Graph\* structures that follow these established formulas or models. Two of the more well known models are the Barabási–Albert preferential attachment model\* and the Watts-Strogatz small world model\*.

TheBarabási–Albert model treats some nodes as “hubs” who have many more connections or degrees than other nodes, and new nodes tend more likely connect with the bigger hubs. The Watts-Strogatz has a probability it takes into account on nodes connecting with neighbors. And so the size of the hub nodes, and attributes are most important for the Barabási–Albert model while the connections and how they appear are more important to the Watts-Strogatz model.

Below are the two models, Barabási–Albert above and then the Watts-Strogatz. You can input how many nodes and edges you’d like the Barabási–Albert model to show with the caveat that nodes must be more than edges, and nodes are limited from 2 to 100 and edges 1 to 50. For the Watts-Strogatz model, you have control over how many nodes, nodes connected, and the probability of neighboring connections, limited from 2 to 100, 1 to 50, and .00 to 1.00 respectively, though you must have more nodes than nodes connected like the B-A graph.