

# PR4b: Network models

Simulate your network using a model of small world (Watts-Strogatz)

- a) Generate and plot the small-world graph
- b) Calculate the clustering coefficient, and the average path length of the generated graph
- c) Analyse and discuss in terms of clustering coefficient, the average path length, and relative small-worldness. How representative of your network is the generated graph?

# PR4b: Network models

Simulate your network using a model of preferential attachment (Barabási-Albert)

- a) Choose a value for the expected degree  $m$
- b) Generate and plot the preferential attachment graph
- c) Calculate the clustering coefficient, and the average path length of the generated graph.
- d) Calculate and plot on a log-log scale the degree distribution of your network and the generated graph.
- e) Analyse and discuss in terms of power-law degree distribution, clustering coefficient, the average path length, and scale-freeness. How representative of your network is the generated graph?