Assignment #8 (Introduction to Network Statistics)

# This assignment digs into a classroom of 29 seventh graders in Victoria Australia. Students nominated three classmates based on three types of relationships: “who do you get on with,” “who are your best friends,” and “who would you prefer to work with.” This was collected by Vickers and Chan (1981) and indexed here: <https://manliodedomenico.com/data.php>.

# Vickers, M., & Chan, S. (1981). Representing classroom social structure. *Victoria Institute of Secondary Education, Melbourne*.

Data note: Data for this assignment is stored in vickers\_class.Rdata. There are eight files in this object (four igraph network objects (.g) and four statnet network objects (.n) of the same four classroom networks). The best.n/g is the class best friends network, the work.n/g is the preferred work with network, the geton.n/g is the get on with network and gender.n/g is the one-mode projection of the co-gender network.

This assignment seeks to better understand the relationship between **friendship** and **work** in this classroom.

# 1. Basic Description

Offer a basic picture of these the friendship and work networks:

1. Plot the networks.
2. Do they differ between each other in terms of relevant network factors?
3. Do they differ exhibit properties of small world networks when compared to random?

# 2. QAP Correlation

Are the two networks correlated with one another? Interpret.

# 3. QAP Logistic Regression

Does friendship affect preferred work relationships in this classroom? Does gender play a role? Interpret.