3.2 Communities

3. Load the network "Zachary", which consists of a social network of friendships between 34 members of a karate club at a US university in the 1970s. Answer the following questions.

(a) Plot the obtained graph.

(b) Apply the Girvan-Newman algorithm to detect communities, through the function cluster_edge_betweenness().

(c) Plot the result of detected communities over the graph.

(d) What do the functions sizes() and membership() give you?

(e) Plot the result of obtained communities as a hclust object.

(f) Apply one of the modularity maximization techniques to detect communities, through the function cluster_fast_greedy().

(g) Explore the obtained results.

4. Detect and explore the communities obtained by the two above algorithms regarding the network of exercise 1.