- **Title:** Spectral Clustering
- **Description:** Networks can be modeled by edge-weighted graphs, where edge-weights are pairwise similarities between the sites (vertices of the graph). We want to find clusters (in other words, communities) of the vertices such that the information flow between the cluster pairs and within the clusters is as homogeneous as possible; minimum and maximum multiway cuts are special cases. For this purpose, we define objective functions, for the minimization or maximization of which we use spectral relaxaton. To estimate minimum multiway cuts we use the smallest eigenvalues of the Laplacian or normalized Laplacian matrix assigned to the graph, whereas clusters are found by means of the corresponding eigenvectors. The methods are applicable to biological, social, or communication networks.
- **Prerequisits:** basic combinatorics and linear algebra
- **Best for:** students who intend to do research in networks
- **Proposer:** Marianna Bolla