

Viktoriya Semeshenko: Complex Networks and Socioeconomic Systems

Class 1:

General Introduction to Network, examples. Availability of Data. Definitions and graphs concepts, Representations, Types. Fundamental metrics (Density; sparsity; degree; distribution degree; distances; clustering)

Class 2:

Case of study: labor mobility. Data: large series. Representation and construction of labor network. Appropriate metrics for the case case. Analogy and differences with social networks. Short paths. Small world properties. Hubs/core decompositions. Core-periphery structures. Centrality measures. Network reduction techniques (Thresholds and Maximum spanning trees). Industry space networks.

Class 3:

Temporal analysis of networks. Distances. Heatmaps (binary and weighted). Dendrograms. Correlations. Economic interpretation of the results

Class 4:

Communities. Social network (example). Leiden algorithm. Labor network: analysis de comunidades