Part I: Course Logistics

Problem Set #0 (ungraded) due next week

Part II: Network organizations

Williamson (1975) Markets and Hierarchies
Features of Network organizations

Examples of network forms at interorganizational level
Policy and collaborative networks

Part III: Notational systems for networks

Two dimensions to network data:
  - Dichotomous vs. valued
  - Symmetric vs. directed
Set of terms to describe what one sees in a network graph
Notations
  - Components of a graph
    - Nodes, lines, values, relations (same nodes, different lines and values)
  - Text-based descriptions of graphs
  - Graphical descriptions of graphs
  - Numeric descriptions of graphs
    - Matrices, cells, values, relations

Part IV: Graph theoretic descriptions of node and network properties

Graph theory describes properties that inherent to nodes, dyads, or networks

Labels on graph aspects
  - Subgraphs – subsets of a network defined by nodes or by lines/ties
  - Components – including maximally connected
  - Dyads – census studied; internally compared
  - Triads – census studied; internally compared

Symmetric, dichotomous graph measures
  - Nodal degree
  - Network density
  - Connectivity/reachability
    - Walks, trails, paths, cycles – from node to node in dyads
    - Geodesics and distance – dyadic measure
    - Bridges & cutpoints – node and line characteristics that have network implications

Directed graphs
  - Different meaning to connections and adjacency
Look at ordered pairs
Used to study reciprocity
Measures are somewhat revised to fit this type of data.
  Indegree/outdegree
  Density
  Walks, trails, paths, semi-paths – taking account of directions

Valued graphs
  May be directed or undirected, but usually directed
  Is the usual type of data that is collected today. Why?
  Values are often discrete, but can be continuous
  Concepts all become more complex but also more useful.
    Density – redefine as connected and at what value
    Walks, trails, paths – can use values to look at reachability non-binary question

Working with sociomatrix
  In almost all cases we want to use the sociomatrix notation, because it offers more flexibility
  UCINET will do the math for us
  The key is that square matrices are better suited to most matrix operations

What do all these counts and measures mean? How might we use them? How does the context affect the way we use/interpret a particular measure?

Part V: UCINET Exercise in Lab

Exercise-Run a few basic analyses

Assignments
  • Readings per my suggestions in class
  • Complete and be ready to discuss Problem Set #0 on Feb 13