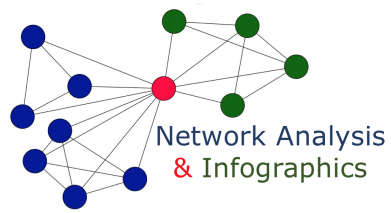
Descriptive Network Analysis A
–Seminar–

Yasemin Aslan)

SPRU (Science Policy Research Unit)
Business School
University of Sussex



Week 4: 18 February 2022

Learning Outcomes

	Learning outcome	Assessment mode
1	Explain the concept of network and list the main network indicators	ESS
2	Describe and apply the major techniques for the collection of network data and their statistical analysis	ESS, GPN + GWS
3	Identify the main characteristics of networks by means of network measures	ESS, GPN + GWS
4	Employ network analysis techniques to produce network data-based infographics	GPN + GWS

Note: ESS: Essay; GPN: Group Presentation; GWS: Group Written Submission

Overview

1. Network-level measures [recap]
2. Network-level measures in *igraph*

Network-level measures [recap]

Network-level measures [recap]
Interpretation

Measure	Interpretation
Diameter	Maximum time/resources for communication, transfer, ...
APL	Average time/resources for communication, transfer, ...
Density	Connectivity of a network
Components	Presence of unconnected groups, bridging opportunities, ...
Cutpoints and bridges	Vulnerability/resilience of a network
Point/Line connectivity	Vulnerability/resilience of a network
Cliques	Highly connected sub-groups, exclusion, ...
Inclusiveness	Presence of unconnected nodes, exclusion, ...
Reachable pairs	Unconnected nodes or groups, bridging opportunities, ...
Transitivity	Social interactions, 'friends of my friends are my friends', ...

Network-level measures in *igraph*

Network-level measures in *igraph*

Your source of all igraph functions: `http://igraph.org/r/doc/`

Network-level measures in *igraph*

Measure	igraph function
Diameter	**diameter(...)**
APL	**mean_distance(...)**
Density	**edge_density(...)**
Components	**components(...)**
Cutpoints and bridges	**articulation_points(...)** [no function to identify bridges]
Point/Line connectivity	**min_cut(...)** [no function for line connectivity]
Cliques	**cliques(...)** and **count_max_cliques(...)**
Inclusiveness	[combination of functions]
Reachable pairs	[combination of functions]
Transitivity	**transitivity(...)**

Next time ...

Next time ...

- **Lecture: Descriptive network analysis B**
  - Node-level measures (centrality measures)
- **Seminar: Descriptive network analysis B**
  - Assessment of node-level measures (centrality measures)