



UNIVERSITÀ
DI TORINO

Analisi e Visualizzazione delle Reti Complesse

NS05b - NetworkX walkthrough (part I)

Prof. Rossano Schifanella





Introduction to NetworkX

NetworkX Basics

- Create and manipulate a graph
- Graphs representations
- Neighbors
- Degree, average degree, density, and basic functions

NetworkX Graph Types

- Undirected, directed, weighted
- Multigraphs
- Bipartite graphs
- Multilayer networks (external packages)



Reading and Writing Graphs

- Adjacency list
- Edge list
- JSON
- GraphML
- Pajek

Drawing

- Draw with Matplotlib
- Graph layouts

Paths

- paths, shortest paths, average shortest path length
- diameter, distances

Components

- connectivity, strong connectivity, weak connectivity

Clustering

- Clustering coefficient, average clustering coefficient, transitivity



Bridges

- [Bridge, local bridge, span](#)

Assortativity

- [Assortativity](#)
- [\[optional\] Structural holes](#)
- [\[optional\] Small world](#)