

Agenda: Networks Tutorial

Monday	
8:00am	Breakfast at NIMBioS
9:00am	Welcome to NIMBioS from Director Gross
9:15am	Quick Getting-to-Know Each Other
9:30am	What is a Network (including representations and notations) (Fefferman) <ul style="list-style-type: none"> • Directed vs. Undirected • Weighted vs. Unweighted • Colored vs. Uncolored • Time varying vs. Static • Random Networks
10:30	Coffee Break
10:50	Standard Descriptive Network Measures (Fefferman) <ul style="list-style-type: none"> • Clustering Coefficient • Motifs • Shortest Paths • Centralities
12:00pm	Lunch
1:00pm	Distributions (Gallos) <ul style="list-style-type: none"> • Centrality distributions • Power Laws • Self-similarity
2:30pm	Coffee Break (including minor trouble shooting of running Python and NetworkX software)
3:00pm	Calculating Descriptive Network Measures in Python (Suarez) <ul style="list-style-type: none"> • Basics of python and networkx package • Create different graphs • Analyzing standard measures
4:45pm	Taking Stock of the Day – Recap and Issues
5:00pm	Reception at NIMBioS
	Dinner on your own
Tuesday	
8:00am	Breakfast
9:00am	Community Detection (Fefferman) <ul style="list-style-type: none"> • Partitioning • Hierarchical Clustering • Partitional Clustering • Spectral Clustering • Random Walks • Spin-Sync Models
10:15am	Coffee Break
10:30am	Percolation (Gallos) <ul style="list-style-type: none"> • Process • Thresholds • Correlations • Some analytical calculations

12:00pm	<i>Lunch</i>
1:00pm	Dynamic Networks (Fefferman) <ul style="list-style-type: none"> • Rewiring Models • Growth Models
2:00pm	Plotting Network Diagrams (Suarez)
3:30pm	<i>Coffee Break</i>
3:50pm	Network Resilience (Fefferman; Gallos)
4:50pm	Taking Stock of the Day
5:00pm	Adjourn (Dinner on your own)
Wednesday	
8:00am	Breakfast at NIMBioS
9:00am	Dynamical Processes on Networks (Gallos) <ul style="list-style-type: none"> • Epidemics • Opinion Spreading • Flock behavior
10:15am	Coffee Break
10:35am	Simulating a dynamical process on networks (Suarez)
12:00pm	Closing Remarks (All)
12:15pm	<i>Lunch</i> and Departure