(Introduction to) Network Analysis 2021/22

Week	Date	Lectures	Labs	Out	Due	Challenges	Comment
1	Feb 14th	Networks motivation, graph theory → network science, course overview	/				
2	Feb 21st	Graphology & networkology, network representations, formats & data	Network representations, basic network algorithms	Homework #1		Four knights	
3	Feb 28th	Erdos-Renyi & configuration models, random graphs vs real networks	Advanced network algorithms, graph models				
4	Mar 7th	Node position & measures of centrality, link analysis algorithms	Measures of centrality, PageRank algorithm		Homework #1	Grand graph	
5	Mar 14th	Link importance & measures of bridging, small-world networks	Small-world models, Homework #1 review	Homework #2			
6	Mar 21st	Scale-free distributions & networks, preferential attachment models	Scale-free models, graphs vs networks			÷-vector centrality	
7	Mar 28th	Assortative & disassortative mixing, fragments & frequent subgraphs	Node degree mixing, graphlet degree distribution		Homework #2		
8	Apr 4th	Community structure, community detection & graph partitioning	Community detection, Homework #2 review	Homework #3		Five networks	

9	Apr 11th	Equivalence, blockmodeling & block models, core-periphery structure	Block models & k-cores, course project overview				
10	Apr 18th	/	Course project consultations		Homework #3		*Holiday*
11	Apr 25th	Network collection & sampling, network backbones & skeletons	Random-walk sampling, Homework #3 review		Project proposal		
12	May 2nd	/	Course project consultations				*Holiday*
13	May 9th	Structural network comparison, node layout & network visualization	Network comparison, board with pegs & bands			PageRank challenge	
14	May 16th	Network inference & link prediction, network-based machine learning	Node embeddings & classification, link prediction				
15	May 23rd	Applications in software, fraud, scientometrics etc.	Preparation for final exam		Project deadline		