Graph Mining, Summer 2024/25

Course Outline

Instructors:

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Course Content

Number	Lecture
Week 1	Introduction to Graph Theory
Week 2	Introduction to Graph Theory cont.
Week 3	Introduction to Graph Theory cont.
Week 4	Random Graph Models
Week 5	Random Graph Models cont.
Week 6	Centrality Measures
Week 7	Centrality Measures cont.
Week 8	Degree Correlations
Week 9	Degree Correlations cont.
Week 10	Artificial Benchmark Models; Simulations on Graphs
Week 11	Community Detection
Week 12	Community Detection cont.
Week 13	Graph Embeddings
Week 14	Graph Embeddings cont.

Textbooks

- Kamiński B., Prałat P. and Théberge F. (2022), Mining Complex Networks, second edition (https://www.torontomu.ca/mining-complex-networks/)
- Barabási A.-L. (2018), Network science. Cambridge University Press (http://networksciencebook.com/)
- Latora V., Nicosia V. and Russo G. (2017), Complex Networks - Principles, Methods and Applications. Cambridge University Press
- Newman M (2018), Complex Networks - Principles, Methods and Applications. Oxford University Press, 2nd ed.
- Menczer F., Fortunato S. and Davis C. A. (2020), A First Course in Network Science. Cambridge University Press
- Boyd S., Vandenberghe L. (2018), Introduction to Applied Linear Algebra – Vectors, Matrices, and Least Squares (http://vmls-book.stanford.edu/)

Course Evaluation

Students' evaluation will be based on five series of homework assignments (each worth 20 points). Grading depends on the points obtained from the homework and additional tasks (up to 50 points):

Points		Grade
From	To	
0	49	Fail (2.0)
50	59	Sufficient (3.0)
60	69	Sufficient Plus (3.5)
70	79	Good (4.0)
80	89	Good Plus (4.5)
90	100	Very good (5.0)