

Complex-Network Modelling and Inference

Lecture 26: Revision

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https://roughan.info/notes/Network_Modelling/

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Section 1

Notes

Admin

Consulting Time:

- Monday, October 29th, 2pm.
- Monday, October 5th, 2pm.

Please note I am away Wed 30 Oct - Fri 2 Nov.

Admin

Last year's exam and solutions are available on the web page.

Exam conditions

- 1 students are allow 2 double-sided a4 pages of hand-written notes
- 2 calculators without remote capabilities are allowed

Section 2

Revision

Outline

Intro Topics

- 1 Introduction and Course Summary
- 2 A Brief History of Communications Networks
- 3 Graph notation and representation
- 4 Application: Bayesian Networks
- 5 Graph connectivity and traversal
- 6 Graph features
- 7 Application: Genome Reconstruction
- 8 Graph features (2)
- 9 Random Graphs: Erdos-Renyi random graphs
- 10 Random Graphs: spatially-embedded random graphs
- 11 Random Graphs: small world networks
- 12 Random Graphs: preferential-attachment models
- 13 Random Graphs: HOT and COLD

Outline

Advanced Topics

- 1 Modelling with Graphs
- 2 Operations on graphs (unary operators)
- 3 Operations on graphs (binary operators)
- 4 Complex Operations on graphs
- 5 Shortest paths (Floyd-Warshall algorithm)
- 6 Path algebras
- 7 Path-problem algorithms
- 8 Network Topology Measurement
- 9 Network Sampling
- 10 Network Tomography
- 11 Network Topology Inference
- 12 Graph Matching

Further reading I