**Social Networks**

* Define the following (a) Paths, (b) Cycles (c) Connectivity, (d) Components and (e) Giant Components. Page 25
* Discuss Distance and Breadth-First Search with an example Page 32
* Discuss normal distribution with a graph in detail. 543,544,545
* Discuss Normal distribution of random numbers with an example. Why do Normal Distributions Appear?

Whenever resultant is the sum of normal variables, Normal distribution occours

[(969) Why do Normal Distributions Appear? - YouTube](https://www.youtube.com/watch?v=Wz1UKeCCjzw&t=343s)

* Why do Power Law emerges in WWW graphs.

[(932) Power Law emerges in WWW graphs - YouTube](https://www.youtube.com/watch?v=-6L0zzYi6lw)

* How to detect the presence of power law in a network?

545. 546, 547

[(969) Detecting the Presence of Powerlaw - YouTube](https://www.youtube.com/watch?v=u_cbdseiy3Q)

* Discuss the Simple model to explain why power-laws emerge?

It emerges due to Preferential Attachment hypothesis, thus degree distribution follows power law. Hence such a connection that grows node by node and respecting degrees of existing nodes follows power law,

A node with higher degree will attract more edges to it and this phenomenon is called rich get richer

[(969) Rich Get Richer Phenomenon - YouTube](https://www.youtube.com/watch?v=FPvS21SOsP4)

* Discuss the mechanism for generating power law distribution.

[(969) Rich Get Richer Phenomenon - YouTube](https://www.youtube.com/watch?v=FPvS21SOsP4)

* Discuss the preferential attachment hypothesis/ Rich get Richer Phenomenon?

[(902) 9-8) Preferential Attachment - Algorithm - YouTube](https://www.youtube.com/watch?v=KmQbzCgqNiI)

* In the real world network Why is it that we are not able to see a normal distribution? Why are we seeing a drop in the curve.

[(932) Power Law emerges in WWW graphs - YouTube](https://www.youtube.com/watch?v=-6L0zzYi6lw)

* Discuss the distribution of popularity to visualize the long tail.

Chapter 2

* Discuss the concept of a triadic closure in social network theory with an example
* Describe the tie strength on social media such as Facebook and Twitter.
* Discuss with an example the embeddedness and structural holes in a social network.
* Define Homophily? Explain how to measure the presence of homophily in a network with an example?
* Explain homophily test with an example?
* Explain the mechanisms underlying homophily with an example? Page 90

Selection and Socialization

* How to Quantifying the Interplay Between Selection and Social Influence. Page 106