NETWORK ANALYSIS COURSE
Wednesday 5:30-8:20 PM
Discovery Park F223

PART –I Basics Of Network Analysis
Suggested Textbooks:
Networks: An Introduction by Mark Newman
Network Science by Barabasi

Lecture 1: Introduction to Graph Theory
Lecture 2: Measures of Importance, and vertex-based properties
Lecture 3: Graph Partitioning and Community Detection
Lecture 4: Issues in Community Detection
Lecture 5: Network Structure

PART –II Advanced Topics in Network Analysis
(Topics can change according to class interest).
Based on Papers and Discussions

Lecture 6: Dynamic and/or Noisy Networks
Lecture 7: Multilayer networks
Lecture 8: Machine Learning and Networks
Lecture 9: Network Analysis in Bioinformatics
Lecture 10: Network Analysis in Social Sciences
Lecture 11: Network Analysis in Epidemiology

Student Tasks:
For part 1, tasks will be assigned every week. Complete a 2-3 page report on the task(s) and submit to Canvas. One to two students will be selected to discuss their reports in the last 40 minutes of the class.
For part 2, students will be assigned papers related to the topics beforehand. They will do a presentation on the paper(s).
Project: After Part 1 is finished students will select a project to work on for the remainder of the course. In the finals week, they will present a poster to showcase the results of the project. Project can be done in teams of at most two members, all other tasks are to be accomplished individually.

Grade distribution: Part1: 30%; Part2: 30%; Poster: 30%; Class Participation: 10%.