

NETWORK SCIENCE COURSE INFORMATION

Instructor: Assoc. Prof. Dr. Orhan Dagdeviren (<http://www.ube.ege.edu.tr/~dagdeviren/>)

Course Web Page: <http://www.ube.ege.edu.tr/~dagdeviren/html/teaching.html>

Time: Friday, 9:15-12:00

Assistant: Res. Ass. Dr. Murat Kurt (e-mail:murat.kurt@ege.edu.tr, web page: <http://ube.ege.edu.tr/~kurt/>)

Aim and Content: Network science is a new field of study which covers compute science, mathematics, physics and engineering. The aim of this course is to investigate the behaviors of complex networks and their elements. It is aimed to teach the designs and analysis of algorithms that are targeted to solve various problems in complex networks.

Course Book: Complex Networks: An Algorithmic Perspective, Kayhan Erciyes, CRC Press, 2014.

Supplementary Materials (Not Full List):

1. A. Barabasi, Network Science, Online, 2014.
2. D. Easley and J. Kleinberg, Networks, Crowds and Markets, Cambridge Univ Press, 2010.

List of Topics (The tentative plan is one topic for each week):

1. Introduction
2. Graph Theoretic Concepts
3. Algorithms and Complexity
4. Network Complexity Analysis
5. Distance and Centrality
6. Special Subgraphs
7. Data Clustering
8. Graph Based Clustering
9. Network Motif Discovery
10. Protein Interaction Networks
11. Social Network
12. Internet Applications
13. Internet Applications
14. Ad hoc Wireless Networks Applications

Tentative Grading:

Coding Homeworks: 20 % (The grades of the late homeworks will be decreased 3 points for each day.)

Written Homeworks: 20 % (Grading penalty is same with the coding homeworks)

Final: 40 %

Project: 20 %

If a student requests, average grade of the final and project will be replaced with the grade of the complementary exam.

Attendance.