CSE 817 Game Theory in Computer Engineering, Fall 2016

Instructor: Assist. Prof. Ömer Korçak **E-mail:** omer.korcak@marmara.edu.tr

Office: MB452 **Office hours:** Monday 13:30-14:30

Course Contents: Normal form games, pure and mixed strategies, Nash equilibrium, minmax strategies, correlated equilibrium, extensive form games, repeated games, coalitional games, bayesian games, evolutionary game theory, basic algorithmic game theory, mechanism design, auctions, game theory applications in wireless networks, cryptography, network economics, network security, peer-to-peer systems, routing, and job scheduling.

Lecture hours: Monday 14:30 - 17:30 (MB 653)

Textbook: Y. Shoham, K.L.Brown, "Multiagent Systems: Algorithmic, Game Theoretic, and Logical Foundations", Cambridge University Press, 2009.
References: Osborne, Rubinstein, "A Course in Game Theory", MIT Press, 1994.
Various IEEE and ACM journals and magazines.

Grading (tentative):
Assignment(s): 30%
Midterm: 20%
Final: 20%
Project / Paper review and presentation 20%
Class participation: 10%

Academic Integrity: Any kind of cheating and plagiarism will be severely penalized. Write everything in your own words and sentences (your own English, even if it is broken!).

Course Outline (tentative):
1. Introduction to Game Theory
2. Normal form games, game formulation, example games, Nash equilibrium, mixed strategies
3. Computation of mixed NE, complexity of NE computation, iterative removal
4. Maxmin/minmax strategies, correlated equilibrium
5. Extensive-form games
6. Repeated Games
7. Coalitional Games
8. Bayesian Games
9. Mechanism Design
10. Efficient Mechanisms
11. Auctions
12. Paper revision 1
13. Paper revision 2
14. Paper revision 3