Tentative Course Schedule

1. Introduction to fundamental theorems of optimization. (weeks 1, 2)
    a. Convex sets, concave and convex functions, extreme points
    b. Fundamental theorems
    c. Duality theory and economic interpretations
    d. Simplex methods
2. Game theory (weeks 3, 4)
    a. Extensive and normal form representation
    b. Mixed and pure strategies
    c. Dominant and rationalizable strategies
    d. Nash equilibria
3. Bayesian Decision Theory (5, 6)
    a. Utility functions
    b. Decision trees
    c. Choice under uncertainty: examples
4. Computer Science Concepts (7, 8)
    a. Discrete-event simulation
    b. Simulation of continuous systems – software tools
    c. Introduction to computational complexity
    d. Applications to economic systems
5. Fundamental concepts of economics (9, 10)
    a. Market equilibrium
    b. Mechanism design
    c. Selected topics