CIS 603 Final Exam Review Sheet – Fall 2013

Monday, 16 Dec. 2013, 11:30am-2:30pm

The final exam is comprehensive, though it will focus more prominently on the material covered since the mid-term (Decision-making in MAS and Social Choice/Mechanism Design). The exam will be closed book, closed notes, and closed electronic devices.

Below is a list of topics (from the mid-term on) that you should have a good understanding of.

Decision-Making in MAS
- Know the basic algorithm, characteristics, and goals of the following algorithms
    - Fictitious play (and belief-based learning in general)
        - belief-based learning
        - convergence of empirical distribution of actions to NE
    - Satisficing learning
    - Leaders/Teachers vs. Followers
    - Reinforcement learning/dynamic programming
    - Expert algorithms

Social Choice/Mechanism Design
- Voting protocals (know how they work and what potential issues they might face)
    - Borda protocol
    - Plurality protocol
    - binary protocol (pairwise elimination)
- Arrow's Impossibility Theorem
    - Axioms of fairness (don't memorize, be able to talk about them)
    - Decisiveness
    - What the theorem says
    - A little intuition behind the proof (you might need to reason through a portion of it)
- Mechanism design (inasmuch as we actually get to these concepts in class)
    - What is the goal of mechanism design?
        - implementation in dominant strategies
        - truth dominance
    - quasilinear utility functions
    - Efficiency
    - Balanced budget
    - Be able to discuss fairness vs efficiency