Instructions for the paper summary

**Grade:** 15% of the total score of the class

**Goal:** to study how convex optimization, Markov decision program, or competitive online algorithms are used in a research area selected by the student.

**Important Deadlines:**
1. Submission of the plan for paper summary: due February 3rd, 2017 in class
2. Submission of the paper summary: due March 24th, 2017 in class

**Instructions:** This is an individual project. Collaboration is NOT allowed. Choose two or more related papers that you are interested in studying. You can choose these papers under the same category from the supplemental reading list. Alternatively, you are also welcomed to choose these papers from any area of interest. It is preferable that the paper summary topic will be the same as your final project topic. You are encouraged to discuss your plan with me before submitting it (by email or during office hours). You should then study these papers carefully, and answer the following questions:

- Summarize the main objectives and contributions of each paper (20%).
- Summarize the models, approaches, and main results of each paper (20%).
- Compare the strength and weakness of each paper (20%).
- Identify any potential extension and future work (20%).
- Fill in important missing steps in the derivations of each paper (20%).

It is advisable that, when you decide on the topic for the paper summary, you do that in the context of the course project that you want to develop. In fact, your project can be based on the papers of your choice.

**Deliverables:**
1. A plan for your paper summary is due February 3rd, 2017 in class. Your plan should be within 1 page. You should provide a list of papers that you plan to study and state clearly
why they are of interest to you. You should also state what you will focus on and how you are going to compare the different approaches of the papers. I will give you feedbacks on your plan within two weeks. I may require you to change the list of papers if I find it to be necessary.

2. Your paper summary is due March 24th, 2017 in class. Your paper summary should be 3-6 pages (in single-column, single-space) plus any extra pages that you will need in order to produce the important missing steps in the derivations of the papers.

**Suggested Topics:** Suggested topics for the final project could be those listed in the supplemental readings. Additional possible topics are:
- Dynamic channel allocation and base-station selection
- Node localization and placement in sensor networks
- Pricing and other economic issues for communication networks
- Software defined radio and spectrum sharing
- Random access protocols
- Multimedia in wireless systems
- Peer-to-Peer systems
- Vehicular networks

**Special Topics of Interest for 2017:**
1. Design and optimization of millimeter wave networks
2. Energy harvesting for wireless sensor networks
3. Management of heterogeneous cellular network
4. Data-center resource allocation
5. Cognitive radio networks
6. Crowd-sourcing
7. Demand-side management in smart electrical grid
8. Robust grid operations under renewable uncertainty.