1. **Class Hour:** TuTh 2:35-3:50pm, PA 258

2. **Office Hour:** TuTh 4:00-5:00pm, Packard Lab 406a; or by appointment.

3. **Class Plan:** One midterm, two projects and several homework assignments. No final. Project One will be to solve a specific problem closely related to the class contents (e.g. PN code acquisition, synchronization, multi-user detection). All students will work on the same topic. No exception. The final project requires you to do some research on a topic relevant to this class. The research would be a simulation study, algorithm design and analysis, or a combination of simulation, analysis and literature review. You are strongly recommended to start early and to combine this final project with your research. You can either work independently or in a group of two. Suggested topics will be given on Sept 30. Pick one topic from the list or propose your own. A brief project proposal (one-page) is required to outline the focus, technical objectives and approaches of the intended project. I will evaluate it and make sure it sounds reasonable for a class project. I will also work with you on an individual base to help you get publishable results if you so desire. The term paper including a 15-20 page write-up will be due by the end of the semester.

4. **Grading Policy:** Homework: 25%, One Midterm: 25%, Project One: 20%, Final Project and Term Paper: 30%


6. **Reference books:**

7. **Course outline:** Fading and dispersive channel model, direct sequence spread spectrum, frequency hopping spread spectrum, DS-CDMA, FH-CDMA, spread sequence and their properties, multi-user detection, PN code acquisition, wireless communications systems, industrial standards (IS-95, WCDMA, CDMA2000).

8. **Prerequisite:** Basic knowledge on statistics and random processes, basic concepts and knowledge on digital communications (AWGN channel model, modulation, detection, coding, etc).