

# CS 851 - Advanced Techniques in Computer Architecture and Storage Systems

## Spring 2006

**Instructor:** Sudhanva Gurumurthi (gurumurthi@cs.virginia.edu)

**Instructor Office Location:** 236B, Olsson Hall

### Course Overview:

We are now in the era of data-intensive computing. Many applications, in both the business and scientific domains, handle massive amounts of data. This places three important requirements on the computing systems that host these applications. First, they need to be able to process this data efficiently. Secondly, the data needs to be stored and accessed securely, with thorough auditing of all operations. Finally, the systems need to provide high availability, even if the underlying hardware is unreliable. In this course, we shall look at how we can address these concerns via techniques that span the hardware/software interface.

The grading for this course will be as follows:

- **Paper Presentations (20%):** The material in this course will be drawn from research papers. Each student will be assigned a topic from the reading list early in the course. The individual would be expected to make the presentation on the assigned day. The actual day of the presentation may be slightly modulated based on the pace of the course. If you fail to show up on the day of your presentation, you will lose 20% of the grade assigned for the presentation and an *additional 20%*, since the loss of a class-hour counts against the other students in the course.
- **Paper Reviews (20%):** Each student is expected to write high-quality conference-style reviews of *three* papers from the course reading list and submit them before the end of the semester (exact deadline will be announced in class). A template for the reviews will be provided. Students are *not* allowed to write reviews of papers that they present in class.
- **Course Project (60%):** Each student group (maximum two per group) is expected to identify a project within the topics of this course and work on it over the duration of the semester. The project could involve mathematical modeling, simulation, actual implementation, or any combination of these. A project report (in the form of a conference-style paper) needs to be submitted at the end of the semester. Detailed timetable of expected deliverables for this project along with a template for the paper will be provided.

### Prerequisites:

CS 654, CS 414 (or equivalent undergraduate-level operating systems course).

### Code of Honor:

You are free to discuss your thoughts and ideas with other students. You are also welcome to discuss freely with your partner about issues related to your presentation and project. However copying code or homework assignments, and any malpractice in the project (eg. reporting fraudulent data, plagiarism) would be treated as a serious violation of the Code of Honor.