**Syllabus for ECE 8873: Advanced Memory Systems, Spring 2014**

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| **How students will be evaluated or graded:**  Students will be graded based on Assignments (30%), Midterms (30%), and a Research  Project (40%). Students will present the results from their research project during the final  exam period. |
| **Topical Outline**   * Memory hierarchy   + Introduction   + Figure of merit   + Goals and Trade-offs * Caches   + Architecture   + Replacement polices: basic schemes and state-of-the-art   + Caching for multicore architectures * Main Memory   + DRAM basics   + Memory architecture   + Scheduling policies   + Power management   + Scaling challenges * Storage subsystem   + Disk : history, principles, and classification   + I/O performance issues and trade-offs   + Reliability: error correction and RAID * Emerging Technologies   + Candidates   + Physics and basic working   + Benefits of Challenges * Memory System with Emerging Technology   + Architecting on-chip caches   + Architecting main memory system   + Architecting storage systems * Mathematical tools for architecture research   + Sampling theory   + Classification and clustering algorithms   + Buckets and balls analysis   + Probability theory |

**Students with Disabilities**

Georgia Tech offers accommodations to students with disabilities. If you need a classroom accommodation, please make an appointment with the ADAPTS office (see http://www.adapts.gatech.edu).

**Georgia Tech Academic Honor Code**

This course will follow the policies and guidelines set forth by the Georgia Tech Honor Code (www.honor.gatech.edu). In particular, we will observe the following policies.

*Plagiarism:* Plagiarizing is defined by Webster’s as “to steal and pass off (the ideas or words of another) as one's own : use (another's production) without crediting the source.”

If caught plagiarizing, you will be dealt with according to the GT Academic Honor Code.

*Homework:* Late homework will not be accepted. You are allowed (and encouraged) to work together with other students on homework, as long as you write up and turn in your own solutions. You are also allowed (and encouraged) to ask me questions, although you should try to think about the problems before asking. I strongly encourage you to work on extra problems from the book on your own.

*Quizzes and Exams:* Cheating off of another person’s test or quiz is unethical and unacceptable. Cheating off of anyone else’s work is a direct violation of the GT Academic Honor Code, and will be dealt with accordingly.

Finally, for any questions involving these or any other Academic Honor Code issues, please consult me, my teaching assistants, or www.honor.gatech.edu.