CSE 40547/60547: Computing at the Nanoscale

Logistics:

Instructor: Michael Niemier
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Course Time: Officially: Monday, Wednesday, Friday: 11:45 a.m. – 12:35 p.m.
                         Actually: Monday, Wednesday: 9:10 a.m. – 10:25 a.m.

Course Location: 356 Fitzpatrick Hall

Website: http://www.cse.nd.edu/courses/cse40547/www/

Texts: None. Course will be paper based.

Course Goals:

By the end of the semester, you should:

1. Have an understanding of what computer architectures and new applications emerging technologies might enable

2. Be able to explain the challenges to current CMOS scaling (at both the device and architectural levels) and consider how an end to Moore's Law might impact application-level performance

3. Be able to explain what industry is doing to "extend CMOS" and continue the performance scaling trends that we have come to expect for the last 30+ years beyond the year 2020. For example, why might 3D integration be a good idea? What are the fabrication challenges? What are the architectural opportunities? What applications may be enabled?)

4. Be able to determine if a new device (i.e. emerging technology) might help to improve the performance of future computational systems, and suggest appropriate applications and architectures.

Grading Policy:

Paper Reviews	65%
Final Project	25%
Class Participation	10%

Late Policy:

- Assignment turned in on time: 100%
- Assignment turned in less than 2 hours late: 20% penalty
- Assignment turned in 2 hours or more, but less than 24 hours late: 50% penalty
- Assignment turned in 24 hours or more late: No Credit

Collaboration Policy:

For paper reviews and reading assignments, I encourage you to talk with your classmates about what specifically is being discussed – even if you don't have questions! However, I expect each individual to do any required writing individually.

Where can I get help if I need it?
Because this is a small class, I won't have any formal office hours. I'm usually around so feel free to knock on my door when you need to. Occasionally I may be up against a deadline or in the middle of a conversation or project and may ask you to come back later – but this will certainly be the exception rather than the rule. If you want to be sure I'm in my office before you come by, please call or email and we can schedule a definitive time.

Honor Code
Students are expected to understand and abide by the principles and procedures set forth in the University of Notre Dame Academic Code of Honor (http://www.nd.edu/~hnrcode/) and uphold the pledge that "As a member of the Notre Dame community, I will not participate in or tolerate academic dishonesty."

Course Outline
Attached to this document is the schedule that I have currently laid out for the class. That said, this does not have to be definitive. In fact, if there are topics that you would like to discuss that are not listed, please suggest them and (if appropriate) I'll do my best to integrate the topic(s) into the class.