Some of the Topics we hope to discuss during the semester:

  1. Introduction and Focus
  2. ISA tradeoffs
  3. uarch tradeoffs
  4. System tradeoffs
  5. Run-time optimizations
  6. Compile-time optimizations
  7. Branch Prediction
  8. Single thread parallelism
  9. Multiple thread parallelism
 10. GPUs (Combining SMT, Predication, and SIMD)
 11. Spatial Computing (FPGA-centric)
 12. Accelerator-centric microarchitectures
 13. Integer Arithmetic.
 14. Floating Point Arithmetic.
 15. Cache Coherency
 16. Memory consistency
 17. Measurement methodology and abuses
 18. RISC: A retrospective
 19. Multi-core, Mega-Nonsense
 20. My sense as to the critical requirements for the future
 21. Guest lectures from local industry
 22. Last class meeting. The free for all

Important dates:

January 17: First class of 382N.19
January 19: 4th class day (Last day to add a course without permission)
January 24: Problem set 1a due before class
January 31: 12th class day (Last day to drop a course without permission)
January 31: Problem set 1b due before class
February 7: Problem set 2 due before class.
February 14: Problem set 4 due before class.
February 15: Groups can start working together.
March 6,7: First design review
March 11-16: Spring break
March 20: Written exam.
March 26: Last day an undergrad can Q-drop, change to Pass/Fail
March 27: no class
March 28,29: Oral exam in my office, EER 5-802
April 4: last day an undergrad can Q-drop for academic reasons, change
to P/F
April 15: last day for a grad student to change to CR/NC
April 29: Last day a grad student can drop a courseb
April 29: Last lecture (free for all)
April 30, May 1: Final design reviews
May 3: Final project report due in EER 5-802, 10pm.
Note: There will be no final exam in this course.