Topics to Review: The following topics are fair game on the second exam, in addition to all of the material that was covered on the first exam. Remember, you are allowed to bring a review sheet to the exam that fills both sides of an 8.5x11" piece of paper and you can bring your review sheet from the first exam (or make up a new review sheet for that material). Also remember to bring a calculator.

- First exam topics
- Lab topics
- Signal Processing
  - SNR
  - Noise (types, frequency characteristics)
  - Noise reduction approaches
    - Filtering
    - Coherent temporal averaging
    - Non-running, running and exponential averagers
    - Theoretical SNR improvements
    - Block diagrams describing averaging algorithms
    - Correlation
  - Frequency-domain Analysis
    - Fourier transform pairs for "common" functions, including delta functions, rects, sinusoids, combs, Gaussians, etc.
    - General properties of the Fourier Transform, including those outlined in the lecture handout
  - Convolution
  - Auto- and cross-correlation (properties of, how to perform the operation, why it is useful, etc.)
- Digital Electronics
  - Digital logic gates
  - Combinatorial and sequential logic
  - SR, D and JK flip flops
  - Registers, latches, counters and timing diagrams
  - Binary numbers
  - Analog → Digital
    - Bit resolution
    - Sampling rates and aliasing
    - Flash ADC
    - Successive Approximation ADC
    - Single-Slope Integration ADC
  - Digital → Analog
    - Resolution
    - Scaled-resistors into summing amplifier
    - R-2R Ladder
  - Know how to design these ADCs and DACs, not just analyze circuits given to you!

Note: I have decided to move the lab practical to the final lab of the semester (Lab 11), not the week during the second exam. This lab practical will be part of your lab average, not your second exam grade.