Tasks for this week:

Complete the design a 2 stage signal conditioning amplifier using a dual op-amp, including the effect of each resistor and capacitor in the design. Sketch the schematic with component values. Simulate the design using LTspice. Sketch a circuit layout using a construction method of your choice that will allow you to build and measure the circuit in the lab. Sketch a layout for a prototype using surface-mount components that may be built in the PSU Electronics Prototyping Lab (EPL).

Visit the EPL and learn how to work with surface mount components.

Homework:

Illustrate the instrumentation and measurement design process on paper, starting with a description of what is to be measured, the signal characteristics, appropriate sensors, a description of the sensor voltage-current outputs, and a sketch of the electronics needed to interface between the sensor and input to a sound card or ADC.

Study Material:

Use the web, lecture material, Op-Amp literature by Jung et al. and each other as resources for the low-frequency analog signal conditioning circuit design.

Next Class Event

Wednesday January 23, a focused session in the EPL on the design and fabrication of a one-off prototype using surface-mount components and construction.

Next Graded Exercise

Wednesday January 23 we will hold an in-class Progress Report/Design Review for the interface circuit. Come prepared to contribute.