ECG Measurement with NI myDAQ ZIWEI JIANG, YUMIN ZHANG, Southeast Missouri State University — The ECG signals are collected from both arms, with one leg engaged as the ground reference. The first section has first order RC low pass filters, and the cutoff frequencies for the common and differential modes are 500 Hz and 10 kHz, respectively. These filters can remove the high frequency noise significantly. The second section is an amplifier, and the gain is set to 100 V/V. The third section is a first order RC high pass filter with the cutoff frequency at 0.5 Hz, which can remove the low frequency interferences. The fourth section is the second stage amplifier and its gain is set to 20 V/V. The fifth section is a notch filter, and it is used to remove the 60 Hz AC interference. There are five main sections in the DAQ circuit: DAQmx virtual channel, DAQmx timing, DAQmx start, DAQmx read and DAQmx stop. With virtual channel template, the physical channel and the input type/range are set. The analog voltage input channel with the sampling rate at 500 is used. The number of samples per channel is set at 1000. In order to further suppress the 60 Hz interference, we put a 3rd order Butterworth IIR band stop filter with the cutoff frequencies at 55 Hz and 65 Hz, respectively.

Yumin Zhang
Southeast Missouri State University