1. (a) To estimate a noise model I used the scipy's Welch function to smooth out the power spectrum. I used a Blackman filter in the Welch because, after some experimentation, it seemed to preserve the signal the best. If I had just taken the power spectrum of the whole strain then a Tukey window would have been preferred because its flat portion would have preserved the signal. I did this originally but the Welch method worked better in the end. I also assumed that the noise model should be about the same for each detector so I further smoothed the noise model by taking an average of the four events. Figure 1 (fig1.png) shows the noise model I came up with.

   (b) Figure 2 (fig2.png) shows the outputs of the matched filter, for each event and detector.

   (c) See e.out.txt for max signal to noise ratios.

   (d) I wrote code for this section but the magnitudes were way off. I think there is some normalization bug in my code somewhere.

   (e) Not completed

   (f) Not completed