HOMEWORK #7
Due at 5 pm on Wednesday 11/21/12

Homework policy: Homeworks can be turned in during class or to the TA's mailbox in the Graduate
Student Lounge. Late homeworks will be marked down by 20% per day. If you know that you need to
turn in a homework late because of an emergency or academic travel, please let the TA know ahead of
time. Collaboration is encouraged on homework assignments, however, the homework that you submit
should reflect your own understanding of the material.

Readings: 1. Read EEGLAB tutorial online at
               http://sccn.ucsd.edu/wiki/EEGLAB#The_EEGLAB_Tutorial_Outline
               I. Single Subject Data Processing
               Chapter 10: Working with ICA components
               Chapter 11: Time/Frequency decomposition
               Chapter 12: Multiple Datasets

               2. Read 1_gettingstarted_eeglab.pdf for the following problems

1. A screen shot of the EEGLAB after you import the EEG dataset, stern.set. Circle the
    difference between your screenshot and Slide #6.
2. Skip "Import Data Event" on Page 9 and go directly to Page 12. Review event values of
    Event #19, take a screen shot. What are the Event_type and latency (sec)?
3. Skip "Import channel locations" on Page 13 because your dataset contains the channel
    location. Review channel locations by clicking Edit -> Channel Locations. Go to channel
    #6 and take a screen shot. Click 'Plot 2-D,' to get a screen shot of 2-D channel locations
    (Page 15).
4. Re-reference data to linked mastoids (Page 19) and filter the data with a high-pass filter
    of 1Hz.
5. Scroll channel data and change the setting of eegplot() (Pages 25-26) to show only 20
    channels per page (including a noisy channel, F6). Take a screen shot.
6. Remove Channel F6 and take a screen shot.
7. Remove noisy data episodes (Pages 34-35) and save the remaining data into a new
    dataset. Take a screen shot of main EEGLAB. How many events are left?
8. Run ICA (Page 39), plot the scalp maps of resultant independent components. (See Page
    41).
9. Extract epochs from continuous data (Pages 44-45), plot channel ERPs from Plot menu.
10. Plot Component ERPs from Plot Menu.