Our second studio exercise will begin to explore mixing. As computer power increases, it is possible to do more complicated processing on our recordings and the temptation is there to exploit all the possibilities. Most of the time, this is unnecessary and can even be counterproductive. We will start by using a limited palette of options to learn how much control of the mix sound can be accomplished with minimal processing. For this exercise, we will use track amplitude, left-right panning and subtractive equalization only.

Amplitude and panning are easily understood. Subtractive equalization allows us only to reduce certain frequencies relative to others but not boost any frequencies. For many, the inclination is to add or boost frequencies when we think of equalization. The potential problem with this is that doing so reduces the amount of headroom available for the mix and clipping can be created if we boost every track at some frequency. By reducing frequency bands only, we can accomplish the same overall balance without risking overloading our system. Another benefit of reducing rather than increasing certain frequencies is that noise in the bands we change is reduced; if we boost the signal we also boost the noise in that band.

Most recording software uses equalizer plug-ins that simulate the look of analog equalizers. There are several types of equalizers based on how many separate frequency bands can be addressed and how many characteristics of each band may be altered. The Logic equalizer plug-in is typical of these and that is what we will use for this exercise.

Filter types

- High-pass
- Shelving
- Parametric
- Shelving
- Low-pass

Filter section on/off

Center frequency
“Q” width of band
Boost or cut

Figure 1: Logic equalizer plug-in window
As you can see from Figure 1, there are several types of equalizer sections: high/low pass, parametric and shelving. Each serves a slightly different function. High and low pass filters remove all content below or above the cutoff frequency (the Logic EQ screen uses the same place for cutoff and center frequency depending on the selected type.) Shelving filters work similarly but allow frequencies above or below the cutoff to be cut or boosted rather than eliminated. Parametric filters allow three parameters of the filter to be adjusted – the center frequency, the width of the EQ band and the amount of cut or boost for that band. The Logic equalizer allows two high/low pass, two shelving and four parametric filters and each may be switched on or off independently. Some other software recording systems require selecting high/low pass or shelving but don’t allow both simultaneously.

We can use equalization to modify individual sounds’ spectra, but the primary ways of separating tracks involve changing their relative amplitudes and apparent position from left to right. We will also use these characteristics in this mixing exercise.

To keep it simple, the songs chosen for this exercise use a minimum number of tracks. It is easier to focus on each track and how they interact if we don’t have too many. In the age of unlimited track recording capability, we need to learn what is required to get the final sound we want with a minimum of distractions.

Below are the tracks for three songs you can work with. They are located in the folder “!!192a Mixing Session files” on Audio One. You will choose one (or more) of the songs and copy the sound files into your session. Copying the files is done by the following:

![Image of audio editing software interface]

Once the files appear in the media window, you can drag them into the Arrange Window to create new tracks for each sound file. Be sure they are dragged all the way to the left to start at time 0.

You don’t need to bounce the mix. When you are happy with your work let Jay or Elliot know and we will look at the session – you are encouraged to meet with us while we do so. We are also happy to help you at any stage of the process.
Black and Blue  (Linda Kadis 1984)
1. Keyboards
2. Lead Vocal
3. Backing Vocal
4. Rhythm Guitar L
5. Rhythm Guitar R
6. Bass
7. Drums
8. Guitar Solo

What You Gonna Do?  (Strange Attractors 1994)
1. Lead Vocal
2. Backing Vocals
3. Keyboards
4. Rhythm Guitar
5. Lead Guitar
6. Bass
7. Drums
8. —

28%  (L. Kadis 1983/2006)
1. Piano
2. Vocals
3. Synth
4. Organ&strings
5. Guitar L
6. Guitar R
7. Bass
8. Drums