

ECS614U/ECS749P: Setting up a Project

In this worksheet we will be covering the mixing and mastering stages of the music production process. Audio can be download from the Cambridge Music Technology website: *www.cambridge-mt.com*. You should aim to complete both stages by the end of the session. Alternatively, you can go straight to Section 3 and practice mastering on your apple loops project.

1 Setting up your project

The first stage is to set up your Logic project.

- Open the Cambridge-MT website.
- Click on ‘Free On-Line Mixing Resources’.
- Select a song (you can audition the mix), and download the audio files. Note that some of the songs contain a **lot** of tracks, so if you are relatively new to music production it’s advisable to pick one with fewer tracks.
- Open a new project and drag the audio files in, selecting ‘Create New Tracks’.
- Save the project.

2 Mixing your song

The second stage is mixing. Using the techniques we have covered produce a mix of your chosen song.

- Balance the levels of the individual tracks.
- Apply equalisation to change the sound of the tracks and to control masking interactions.
- Use reverberation to add a sense of space to the mix. If you are using a single reverb effect add this to a bus and send each track to this bus.
- Use dynamic effects where necessary.

It is important that you get to the mastering stage during this session, so you should impose a time limit on the mixing stage of approximately 1 hour. Once the mix is ‘finished’, bounce it down, ensuring there is sufficient time at the start and end of the song. This is your pre-master mix. The quality of the pre-master should be at least as good as the final mastered version, e.g. CD quality: 16 bit, 44.1 kHz. For the final soundscape assignment you must submit both pre-master, and mastered versions.

3 Mastering

Open a new project. In *Collection* select *Produce*, and in *Template* select *Stereo Mastering*. Drag in your pre-master mix and save the project. Each track in this project template contains the most commonly used mastering processing devices: gain, EQ, multi-band compression, and limiting.

- **Gain:** control the level of the mix.
- **EQ:** adjust the spectral content of the mix.
- **Multi-band compressor:** control the dynamic characteristics of individual frequency bands within the mix.
- **Limitter:** final compressive stage that is used to prevent clipping, and if driven hard (by increasing input gain) will make your mix louder.

You are free to add any other effects into the chain if so you wish.

When you are producing your final soundscape mix you should go through the mastering process, but if you are not comfortable using some of these tools (esp. the multi-band compressor) it is ok to leave them out. The most important reason for you to master is to draw a line under the mix, take a break, and come back with a fresh perspective.

Once processing has been applied you must prepare to bounce the mix:

- Set suitable start and end points for the mix.
- Ensure that the fade ins and fade outs are set to prevent clicks or abrupt changes.
- Ensure that the dynamic range is used appropriately.

Once these are set do a final sanity check on the mix, then press bounce. Set the bounce parameters to CD quality, and also select one of the dithering options (which relate to different dithering algorithms, details of which are in the Logic manual). For the final soundscape submission you must use dithering, but marks will not depend on the choice of algorithm.

The final stage is to listen to your mastered version in iTunes (or equivalent) to make sure everything has worked as intended. If there are errors in the audio files that you submit for your final assignment you will be penalised heavily. You absolutely must do a final sanity check before signing off any audio production work!

Here are a few useful resources if you want to take your mastering further:

- <http://masteringinlogic.com/>.
- <http://audio.tutsplus.com/tutorials/mixing-mastering/how-to-master-a-track-in-15-minutes-or-less/>.