

MIX & MASTERING

END-OF-SEMESTER PROJECT REQUIREMENTS & EVAL. CRITERIA

EVALUATION CRITERIA

The projects will be evaluated from these aspects:

- Composition and Arrangement:
 - overall form and structure
 - choice of sounds and instruments
 - "quality" of the melodic and harmonic parts
 - stylistic elements (whether the used elements match the chosen music style)
- Complexity: number of tracks/instruments/parts
- Sound Design: use of innovative and complex synthesizer parts or mixing effects
- Live Elements: quality of the recording, editing and integration into the piece
- Mixing: balance, panorama, EQ, dynamics, use of reverb and delay effects to achieve depth
- Mastering: tonal balance, dynamics, saturation/distortion, limiting, master peak and loudness level

The main project accounts for 80% of your evaluation.

The remaining 20% is based on completing successfully the Music Production Quests (up to 5% for each).

LENGTH

At least 4 minutes, not longer than 6.

You can also present two different pieces, if the combined length is 4-6 minutes.

COMPLEXITY

The project should include at least the following elements:

- one or 2 rhythm tracks (for example: 1 perc. and 1 drum loop, or 1 perc. loop + 1 programmed drum track)
- bass (for example: acoustic bass, e-bass, or synth bass)
- melody (for example: a vocal part or instrument such as guitar, flute, oboe, clarinet, violin, etc.)
- chord elements (for example: piano, e-piano, Hammond organ, synthesizer)
- additional elements (such as pads, effects, additional synth lines, etc.)

Total elements: 12-24 (each drum sound counts as an element)

Apart from the drum and percussion tracks, that could be also based on WAV loops, the other elements should be VST instruments (with own programmed patterns and sequences), external MIDI synthesizers/samplers, or live instruments.

Additionally, the project should fulfil the criteria defined in your own *Manifesto* at the beginning of the semester.

The song can also originate out of one of the *Music Production Quests* (for example: the 4-chord sequence), as long as it fulfils all other criteria. You can also integrate more *Quests* into your main piece (for example: a song based on the 4-chord sequence, including an atonal section and reamping on some instruments).

LIVE ELEMENTS

At least one live recorded instrument or live recorded vocals are required, regardless whether you had defined this in your manifesto or not. More than one live element is recommended (☺)

FORM AND STRUCTURE

The track must be clearly structured and have at least 2 contrasting thematic ideas (A and B).

For example, it could be structured as a simple song:

- Intro
- AA (verse)
- B (refrain)
- Break (can be similar texture as intro)
- AA (verse)
- B (refrain)
- Coda (can be similar texture as intro and break)

Other possible forms:

- Theme with Variations: A - A' - A'' - A''' - A'''' ... (can be used for techno/trance/electronica)
- More complex song: Intro - A - A' - B - C (bridge) - break - A'' - A''' - B - B - C ...

MUSIC STYLE

Most music styles will be accepted including:

- pop/rock (song/ballade)
- hard rock
- heavy/death/trash metal
- rap/hip-hop/urban beats
- dance, techno/trance/electronica
- jungle/drum'n bass
- chill-out/dub/downbeat
- dubstep
- folk/traditional
- world/ethnic
- orchestral/soundtrack

MIXING AND MASTERING PROGRAMS

You can start working on your project with a DAW of your choice, but the main mixing and mastering should be done in Cubase, Nuendo, Pro Tools, or StudioOne. Proof might be required (showing the project, or screenshots).

MIXING

Attention should be given to these aspects in the mix:

- balance between the elements (relative level of the tracks)
- panorama (position in the stereo field) and stereo width (tip: stereo dual panner)
- depth placement (using reverb and delays)
- range in the frequency spectrum (choice of instruments and texture, use of filters and equalizers)

Mixing tips:

- Do not try to mix everything "loud"! Some elements such as melody or vocals, as well as drums, should be more present than others such as chords, pads and effects.
- Panorama: distribute the elements across the stereo image in an exciting way, but leave main elements such as BD, SD, bass and melody/vocals in the middle.
- Depth: the dry/wet balance, or the amount of signal you send to those effects, will affect the forward and back positioning of elements.
- Use at least a couple of reverbs (with different settings), or a reverb and a delay to give space to your mix.
- Do not use too many equalizers and filters: often less is more. If you have the feeling an element has too much bass or high frequencies, just use a shelving or tilt EQ.
- You can try chorus or other modulation effects (such as flanger and phaser) on background effects, vocals and "pads".
- Keep the mix interesting by adding some new element after the middle break (often it is enough to add a small rhythmic element, like an additional tambourine, shaker or hi-hat, or an additional guitar or synth line).

MASTERING

Check out your output levels! The output of your mix should not exceed +3 / +4 dBFS before adding master chain effects.

You can then add a *Compressor* and a *Brickwall Limiter* to reduce the gain of those peaks to -0.2 dBFS (standard for mastering).

Optional effects in your master chain: Virtual Tape Machine, Mastering EQ (Manely Massive Passive, NI Passive EQ, Millennia nseq-2, etc.), Console Emulation (Slate VCC), M/S Saturator (like the Vertigo VSM-3), etc.

The Limiter should be capable of *True-Peak Limiting* and *Oversampling* to avoid inter-sample overs, like here in FabFilter Pro-L2:



Try not limit more than 3-4 dB in the loudest passages, or you might lose definition on the transients or even get distortion.

More Mixing and Mastering tips:

- http://digitalnaturalsound.com/images/stories/fh_mma_courses/pdf/mg_mixing_and_mastering_tips.pdf

An alternative to a standard limiter is a *Clipper/Saturator*, like the Limiter N. 6 from Vladg

- Free download: <https://vladsound.wordpress.com/plugins/limiter6/>.



Here I usually just activate the last 2 sections (the Clipper with *Upsampling* activated and the Protection set as *ISP precise*).

LOUDNESS

The Integrated Loudness (for the whole piece) should be between -10 and -14 LUFS (depending on the target platform and music style, see under). The Short Term Loudness should not exceed -9 LUFS for the loudest sections (such as refrain). Use iZotope Studio RX (in demo mode) or Cubase in-built Loudness Meter to measure the loudness levels.

Here some target Integrated Loudness values for the most popular audio platforms:

Platform	Integrated Loudness
Spotify	-14 LUFS
YouTube	-13 LUFS
Tidal	-14 LUFS
iTunes/Apple Music	-16 LUFS
CD Audio	-14 / -12 LUFS recommended -10 LUFS or louder is quite common

About CD Audio: Unfortunately, there is still no Loudness Normalization standard. The limit is 0 dB FS for the peaks (-0.2 is better). CDs are often mastered “as loud as possible”, at the cost of distortion and poor audio quality (see “Loudness Wars”).

FILE NAMING POLICY, AUDIO FORMAT

File naming policy:

- `firstname_lastname_track-title_mix-or-master_date(DDMMYYYY).wav`

For example:

- `Nigel_Stanford_Cymatics_Master_20141112.wav`

The main projects and audio quests must be delivered in the following audio format:

- WAV/AIFF/FLAC Stereo, 24-bit resolution, 44.1/48 kHz sampling rate

MP3 or other lossy file formats will not be accepted.

DELIVERY METHOD

Presentation delivery method: FAT32 or exFAT formatted USB-Stick using MBR (must be readable by both Windows and Mac OS X).

Note: USB-Sticks formatted with Mac OS X “El Capitan” might not work under Windows, unless you access the advanced options. The Disk Utility advanced options of El Capitan are hidden. Please follow these steps to make them available:

1. Quit Disk Utility
2. Open the Terminal utility
3. Run the following Command: `defaults write com.apple.DiskUtility advanced-image-options 1`
4. Relaunch Disk Utility

Now, just format your USB-Stick with MBR Partition (Master Boot Record) and exFAT file System. The USB-Stick now can mount in OSX & Windows.

Final project and quests delivery method: upload your audio file using WeTransfer (www.wetransfer.com) and send the download link to my email address (xenomorph-dns@outlook.com)

You can ZIP your audio files, but please do not use WinRAR (it is not installed as standard on every OS).

DEADLINES

Project presentation: the last date in June at the end of the semester (TBA).

Final project and quests delivery per WeTransfer (after feedback given during the presentation): 7th of July.