

SØRAV MUSIC ACADEMY

LEVEL 2 · MIXING FOUNDATIONS

A practical guide to balance, panning, EQ, compression, reverb, delay and completing your first mix in Logic Pro.

How to use this guide

Work through one lesson at a time. Listen before changing controls, write down the problem you hear, make one change, and compare at similar loudness. The numbers and examples in this guide are starting points—not universal presets.

Learning outcomes

By the end, you should be able to organise a session, build a static mix, maintain healthy signal levels, use panning and EQ intentionally, control dynamics, create depth with sends, use tempo delay, and export/check a mix.

Lesson 1: What Is Mixing?

Learning objective: Understand mixing as the set of decisions that makes separate recorded parts work together as one intentional musical picture.

Mixing is a set of relationships

A mix is not a collection of plugins. It is the relationship between sources: level, tone, timing, stereo position, dynamics and space. The goal is clarity, emotional impact and a believable musical hierarchy—not making every track loud or impressive in solo.

Start with the arrangement

Before processing, listen to the full arrangement. Identify the lead element, supporting parts, low-frequency foundation, rhythmic anchors and details. If two parts compete for the same role, a fader move or arrangement change may solve the problem more naturally than EQ.

A repeatable order

Use this order as a starting point: organise and name tracks; check edits and polarity where relevant; set sensible clip/region levels; balance with faders; pan; shape tone with EQ; control dynamics when needed; add sends for shared space; automate musical changes; compare at matched loudness.

Reference listening

Choose a commercially released reference in a similar style. Compare at roughly equal perceived loudness, not by turning the reference up. Listen for vocal/instrument hierarchy, low-end balance, brightness, stereo width and how effects support the song. A reference is a guide, not a command to copy.

A mix is context-dependent

A soloed vocal can sound thin yet fit perfectly with guitars and keys. A bright hi-hat may sound exciting alone but painful in the chorus. Make decisions in context, then briefly solo to diagnose—not to judge the final result.

Teaching diagram: Mixing decisions

Arrange → Balance → Pan → Process with purpose → Automate → Check → Export

A good mix begins with listening and balance, not with a plugin chain.

Logic Pro practical

In Logic Pro, create a project with at least six sources (lead vocal, bass, kick, snare, harmonic instrument and a detail track). Name and colour-code tracks, set all faders to a neutral starting point, then build a static balance using faders only. Keep the master output from clipping. Save a version called Mix_01_Static_Balance.

Listening exercise

Listen once without touching controls. Write down the three most important elements and two things that distract from them. Repeat after your static balance and note what improved.

Common mistakes

- Adding plugins before identifying the actual problem.
- Judging every track in solo rather than in the full arrangement.
- Comparing references at a much louder level.

- Treating loudness as proof of quality.

Completion task

Export a 20–30 second rough mix and write five sentences: intended focus, biggest masking problem, strongest element, weakest element and the next single change you would try.

Lesson 2: Volume, Balance and Gain Staging

Learning objective: Separate track balance from signal level management, and maintain headroom through the signal path.

Balance is musical; gain staging is technical

Balance answers “what should the listener notice?” Gain staging asks “are levels healthy at each stage?” A good balance can be quiet or loud. Gain staging does not require every track to peak at one magic number; it requires avoiding unwanted clipping and feeding processors sensibly.

Peak, RMS and perceived loudness

Sample peak measures the highest digital sample; true peak estimates reconstructed peaks between samples; RMS approximates average signal energy over a window. Perceived loudness also depends on spectrum, dynamics and context. Two tracks with identical peaks can sound very different in loudness.

A practical starting point

Lower region/clip gain or use a gain utility when a recorded file is unusually hot; then use channel faders for balance. Leave room on the stereo output. For a typical 24-bit mix session, peaks around -12 to -6 dBFS on individual tracks can be a useful working range, not a mandatory target. The mix bus should not clip.

Plugin input and output

Some processors change level. Compare bypassed and active states at similar loudness so “louder” is not mistaken for “better.” If a compressor reduces 4 dB, use output gain only to restore useful level—not to hide the effect of the processing.

Meters are evidence, ears decide

Use channel meters, peak indicators and the master meter to catch overloads. A floating-point DAW mixer may retain internal headroom in some stages, but a clipped audio file, plugin input, hardware output or final export can still distort. Never assume every stage is protected.

Teaching diagram: Signal level path

Region/Clip Gain → Channel Input → Plugins → Fader → Stereo Out → Export

Watch the actual signal path: a fader after a plugin cannot undo clipping inside that plugin.

Logic Pro practical

In Logic Pro, enable track meters and the Stereo Out meter. Find the loudest section. Lower region gain or the track fader to stop the Stereo Out from clipping, then rebalance the mix. Insert Logic’s Gain plugin before a compressor on one track; adjust input level and compare compressor behaviour. Keep a screenshot or written peak notes.

Listening exercise

Make two versions of the same mix: one with a channel pushed hot into a processor, one with a lower input and matched output. Level-match them and listen for distortion, pumping and tonal changes.

Common mistakes

- Chasing one exact peak number on every track.
- Using the master fader as the only fix for every overloaded channel.
- Comparing processed and bypassed signals at different loudness.

- Confusing fader position with the level entering a plugin.

Completion task

Record approximate peak readings for kick, bass, vocal and Stereo Out during the loudest section. Explain where you adjusted level and why.

Lesson 3: Panning and Stereo Placement

Learning objective: Use left-right placement to create separation while preserving a stable, intentional centre.

What panning changes

Panning distributes a mono source between left and right outputs. It can create separation and width, but it does not fix every masking problem. The centre commonly carries important anchors such as lead vocal, kick and bass, depending on the arrangement.

Build a stable centre

Start with the elements that must feel anchored. Then place supporting instruments around them. A simple arrangement might put lead vocal, kick and bass near centre; guitars or keys slightly apart; percussion and ear-candy wider. This is a starting idea, not a genre rule.

Pan law and level perception

DAWs may apply a pan law to compensate for perceived level changes as a mono signal moves toward the centre. Exact behaviour depends on settings. When comparing positions, listen for both placement and level rather than assuming a pan move changes only location.

Stereo tracks need care

A stereo track already contains left-right information. Logic's Direction Mixer or balance/pan controls behave differently depending on channel format and plugin. Avoid collapsing or widening stereo content without checking mono compatibility and phase interactions.

Width is not the same as quality

Extreme width can sound impressive on headphones and unstable on speakers or in mono. Keep essential information robust. Check the mix in mono at low volume to hear whether important elements disappear or become hollow.

Teaching diagram: Simple stereo map

LEFT: Guitar A / Percussion CENTRE: Vocal / Kick / Bass RIGHT: Guitar B / Keys

Treat this as a starting layout. The arrangement and source recordings determine the best placement.

Logic Pro practical

In Logic Pro, pan a mono guitar left and a second complementary part right. Keep kick, bass and lead vocal near centre. Listen on headphones and speakers if available, then use a mono check (for example, a suitable utility or Stereo Out monitoring method) and note what changes.

Listening exercise

Listen to a verse and chorus. Track where the lead, low end and supporting layers sit. Notice whether width increases through arrangement, panning, stereo recordings or effects.

Common mistakes

- Panning only to make the screen look symmetrical.
- Putting every important element in the centre until the mix feels crowded.
- Widening low end without checking mono.
- Assuming stereo tracks can be panned exactly like mono tracks.

Completion task

Create a simple pan map with 8 sources. Include a reason for each position and identify which sources must remain clear in mono.

Lesson 4: EQ Fundamentals

Learning objective: Understand frequency, filters and bell curves, then use EQ to solve a defined tonal problem.

Frequency and perception

Frequency is measured in hertz (Hz). Low frequencies are associated with weight and fundamental tone; mids carry much of note identity and intelligibility; upper frequencies contribute articulation, brightness and air. These ranges overlap and are not fixed borders.

Three common shapes

A high-pass filter reduces content below its cutoff; a low-pass filter reduces content above its cutoff. A bell filter boosts or cuts a band around a centre frequency. Shelves change a broad region above or below a turnover frequency. Filter slope and Q/width influence how gradual or focused the change is.

Frequency, gain and Q

Centre frequency chooses where the change happens; gain sets boost or cut; Q controls bandwidth. Higher Q is narrower. A narrow boost can help locate a resonance, but broad, modest moves often sound more natural for tonal shaping.

Subtractive and additive EQ

First ask what is wrong: rumble, boxiness, nasal tone, dullness or harshness. Remove only what interferes with the source. Boosting can be useful, but every move changes the relationship with other instruments. A high-pass filter should not automatically be applied to every track.

Use EQ in context

Sweep gently at a moderate level to identify a problem, then stop sweeping and make a considered move. Recheck the full mix, bypass at matched loudness and avoid using large boosts as a substitute for arrangement or balance.

Teaching diagram: EQ controls

Frequency = where | Gain = how much | Q = how wide

High-pass reduces lows; bell shapes a band; shelf changes a broad region.

Logic Pro practical

Insert Channel EQ on a vocal or guitar in Logic Pro. Identify its high-pass, bell and shelf controls. Toggle one small change at a time; write down the frequency region and purpose. Compare bypassed and active at matched loudness, then check the source in the full mix.

Listening exercise

Listen for low rumble, low-mid buildup, nasal midrange, hard upper mids and excessive top end. Describe the audible issue before naming a frequency.

Common mistakes

- Using exact internet frequency recipes without listening.
- Cutting every track's low end indiscriminately.
- Boosting while forgetting to level-match.
- Making several changes at once and losing cause-and-effect.

Completion task

Make a three-row EQ log: audible problem, chosen control and why the mix improved. Include one track where you decide not to EQ.

Lesson 5: Removing Mud and Harshness

Learning objective: Diagnose masking and tonal buildup without stripping the body or natural character from sources.

Mud is often cumulative

A single instrument may sound full alone, while many instruments with energy in the low-mid range create a cloudy mix together. The issue can be overlapping parts, arrangement density, room tone, mic proximity or too much sustained energy—not simply one bad frequency.

Find the source before cutting

Mute and unmute likely contributors in the full mix. Compare the vocal, guitars, keys and low percussion. If the mix clears when one layer is muted, adjust that layer's level, arrangement, EQ or note voicing before cutting everything.

Harshness and listening fatigue

Harshness often appears in upper mids or treble, but the exact area varies with source, microphone, distortion and playback. A bright cymbal, aggressive vocal consonants or guitar presence peak can cause fatigue. Listen at a comfortable level and take breaks.

Small changes and trade-offs

Use broad, modest cuts to reduce buildup. Narrow cuts can address a distinct ring or resonance, but sweeping narrow notches across every source may create unnatural tone. When reducing harshness, check that the source still feels present and intelligible.

Alternatives to EQ

Try lowering the competing part, changing its pan, editing an arrangement, adjusting a synth patch, moving a vocal consonant with automation, or using dynamic EQ/de-essing where appropriate. Choose the least destructive solution.

Teaching diagram: Diagnosis before EQ

Full mix → Mute likely layers → Find contributor → Small targeted change → Recheck full mix

Low-mid buildup is often cumulative; do not cut the same band on every track.

Logic Pro practical

In Logic Pro, loop the busiest section. Mute groups to find the main source of low-mid buildup. Make one modest EQ change on that source, then compare in context. For a harsh vocal, test automation or a de-esser/dynamic control before applying a deep static cut.

Listening exercise

At low playback volume, identify whether the vocal remains understandable and whether the low end still feels solid. Then listen briefly at normal level for harshness; do not turn up to diagnose indefinitely.

Common mistakes

- Cutting the same frequency on every track.
- Removing warmth while chasing a cleaner spectrum.
- Confusing a level imbalance with a frequency problem.
- Making decisions while monitoring too loudly.

Completion task

Write a before/after diagnosis naming the source, audible symptom, action taken and what body or presence you had to preserve.

Lesson 6: Compression Fundamentals

Learning objective: Understand compression as level-dependent gain control and decide when it serves a musical purpose.

What a compressor does

A compressor reduces gain when the signal crosses a threshold according to a ratio and timing behaviour. It can control peaks, make performance feel steadier, add sustain or shape groove. It does not automatically make a track sound professional.

Threshold and ratio

Threshold sets the level at which compression begins. Ratio describes how much output level changes above threshold in a simplified static model. At 4:1, a signal 8 dB above threshold produces about 2 dB above threshold at the output, before attack/release and other details are considered.

Knee, detector and makeup gain

Knee controls how gradually compression begins around the threshold. Detector choices such as peak or RMS-style behaviour influence response, depending on the compressor. Makeup/output gain compensates for level reduction; it is not the same as compression itself.

Compression versus limiting

A limiter typically uses a very high ratio and/or a ceiling to constrain peaks, but exact behaviour depends on the design. A compressor can be gentle or aggressive. Use the processor that matches the problem and musical intent.

Use gain reduction as a clue

Gain-reduction meters show how much the compressor is turning the signal down. There is no universal correct number. A few dB may be enough for control; larger reductions can be intentional for effects, but listen for pumping, dull transients and lost expression.

Teaching diagram: Simplified compression curve

Below threshold: little/no reduction | Above threshold: output rises more slowly than input

Threshold, ratio, timing and detector behaviour all affect the result.

Logic Pro practical

Insert Logic Pro Compressor on a vocal or bass. Start with a moderate ratio (for example 3:1), medium attack and release, then lower threshold until you hear controlled gain reduction. Level-match output and bypass. Change only one parameter at a time.

Listening exercise

Compare fast and slower attack settings on a percussive source. Listen to the initial hit, sustain, groove and apparent loudness rather than only watching the meter.

Common mistakes

- Setting threshold by copying a number from another session.
- Using makeup gain to prefer the louder version.
- Compressing every track by default.

- Ignoring how attack and release change transients and groove.

Completion task

Save two compressor settings: gentle control and obvious effect. Document threshold, ratio, attack, release, gain reduction and the audible difference.

Lesson 7: Attack, Release and Gain Reduction

Learning objective: Hear how compressor timing changes transients, sustain and rhythmic movement.

Attack shapes the front edge

A faster attack catches more of the beginning of a sound; a slower attack allows more transient through before gain reduction fully develops. Too-fast attack can soften punch; too-slow attack may miss peaks that need control. The result depends on source and compressor design.

Release shapes recovery

Release determines how quickly gain reduction relaxes after the signal falls below the detector's effective region. Too short can create distortion or level flutter; too long can keep the signal reduced into the next beat. A release that follows the groove can make compression feel musical.

Gain reduction is time-varying

The same ratio and threshold can behave differently on a sustained pad, a snare and a vocal because their envelopes differ. Watch reduction while listening to phrases and beats, but do not optimise the meter at the expense of sound.

A practical comparison method

Keep threshold and ratio fixed. Change attack only and listen. Return to the baseline, change release only. Level-match each version. This isolates cause and effect and builds transferable listening skill.

Auto release and program dependence

Some compressors adapt timing or use multiple time constants. Auto can be a useful starting point, but learn the manual controls as well. Different plugins may label and implement timing differently.

Teaching diagram: Compressor envelope

Attack: response begins → Gain reduction develops → Release: gain returns

Timing changes the transient and the recovery between hits.

Logic Pro practical

Use Logic Pro Compressor on a snare or drum bus. Create three versions with slow, medium and fast attack while keeping other controls stable. Then compare short, medium and long release settings. Level-match and note punch, sustain, pumping and groove.

Listening exercise

Listen to the gap between hits as well as the hit itself. Does the compressor recover before the next beat? Does the vocal breathe naturally between words?

Common mistakes

- Changing attack, release, threshold and makeup gain simultaneously.
- Assuming faster is always tighter or slower is always punchier.
- Setting release without listening to tempo and phrase length.
- Using the reduction meter as the sole target.

Completion task

Create a small table of six timing combinations and describe the most musical result for your chosen source.

Lesson 8: Reverb and Depth

Learning objective: Use early reflections, decay and send levels to place sounds at a believable distance without losing clarity.

Reverb gives spatial clues

Early reflections suggest room boundaries and size; the later reverberant tail communicates space and decay. More wet signal and longer decay often move a source perceptually farther away, while a clearer dry signal tends to feel closer.

Insert or send?

An insert reverb processes one track directly. A send routes some signal to a shared auxiliary channel, allowing multiple tracks to inhabit the same space and keeping the dry/wet balance easy to manage. Shared reverb can create cohesion, but not every source needs the same room.

Pre-delay and decay

Pre-delay is the time before the reverberant response begins. A little pre-delay can preserve the initial consonant or transient before the tail blooms. Decay time determines how long the reverb continues; choose it in relation to tempo, arrangement density and desired emotion.

Filtering the reverb

High-pass or low-pass filtering on the reverb return can keep low-frequency buildup and excessive brightness out of the tail. This is often more transparent than removing all low end from the dry source.

Depth without washing out the mix

Start with the return low and raise it until the space is felt, then reduce slightly. Automate sends for sections or phrases. Short rooms can add cohesion; plates can support vocals; halls can create scale. These are common uses, not rigid rules.

Teaching diagram: Reverb send

Dry track ■■■■■■■■■■■■■■■■■■■■ **Output** ■■ **Send** ■■ **Aux Reverb (100% wet)** ■■ **Output**

A shared aux makes the wet/dry balance and shared space easier to control.

Logic Pro practical

Create a Bus send from a vocal to a new Aux in Logic Pro and insert ChromaVerb or Space Designer on the Aux. Set the reverb to 100% wet on the return, then control amount with the send. Try a short room and a longer plate/hall, adjusting pre-delay and decay in context.

Listening exercise

Compare dry, short-room and long-tail versions. Listen for consonant clarity, note endings, gaps between phrases and whether the reverb masks the next line.

Common mistakes

- Putting a 100% wet reverb directly on an insert and losing dry signal unintentionally.
- Using one long reverb on every source.
- Ignoring low-frequency buildup in the return.
- Judging the reverb in solo only.

Completion task

Save two send settings called Near Room and Wide Tail. Describe which source and section each supports and why.

Lesson 9: Delay and Space

Learning objective: Use delay time, feedback, filtering and tempo relationships to add rhythm and width without clutter.

Delay is a timed repeat

Delay repeats a source after a chosen interval. A single repeat can create depth; multiple repeats create rhythm and texture. Unlike diffuse reverb, delay repeats can remain distinct and can compete with the next lyric or musical event.

Tempo-synchronised timing

A quarter note lasts 60,000 divided by BPM milliseconds. At 120 BPM, a quarter note is 500 ms, an eighth note 250 ms and a dotted eighth 375 ms. Sync modes often provide note values directly; check whether the plugin uses straight, dotted or triplet divisions.

Feedback and filtering

Feedback controls how much of the delayed signal is sent back into the delay path. More feedback creates more repeats and can build up quickly. Filtering repeats darker or brighter than the original can help them sit behind the dry source.

Insert versus send

A send to a delay bus lets the dry source remain intact and allows automation of delay throws. Set the delay return fully wet, then raise the send for selected words or moments. Inserts can be useful for special effects when the whole signal is meant to be transformed.

Stereo delay and mono checks

Different left/right delay times can widen a source but may create phase or mono-compatibility issues. Check mono and avoid making the dry lead depend on wide delayed content for intelligibility.

Teaching diagram: Tempo delay at 120 BPM

Quarter = 500 ms | Eighth = 250 ms | Dotted eighth = 375 ms

Tempo sync avoids guessing; check that repeats do not mask the next phrase.

Logic Pro practical

In Logic Pro, create an Aux bus with Stereo Delay or Tape Delay. Set the return 100% wet, choose a tempo-synced eighth or dotted-eighth repeat, lower feedback and filter the return. Automate the vocal send on the final word of a phrase for a delay throw.

Listening exercise

Listen to how repeats line up with kick/snare and the next vocal phrase. Compare straight eighths, dotted eighths and quarter notes at the same tempo.

Common mistakes

- Too much feedback filling every gap.
- Using delay to cover a weak arrangement or performance.
- Forgetting to set an aux return fully wet.
- Not checking mono compatibility for stereo delays.

Completion task

Create one subtle rhythmic delay and one automated throw. Write the BPM and note value used, plus why the delay does not obscure the lead.

Lesson 10: Your First Complete Mix

Learning objective: Combine balance, panning, EQ, compression and sends in a deliberate workflow, then export and review a mix.

Prepare before processing

Name tracks, organise groups, colour-code, check edits and identify the loudest section. Save a new version. Decide what the listener should focus on and make a short list of mix priorities.

Static mix first

Set levels and pans before adding processors. Mute/unmute to identify masking and use arrangement choices when possible. A strong static mix reduces the amount of corrective processing needed.

Process with a purpose

For each plugin, write the problem it addresses. Use EQ for a tonal conflict, compression for a dynamic goal, and time effects for space or rhythmic interest. Bypass at matched loudness. Avoid stacking processors without a reason.

Automation and translation

Automate vocal level, effect sends and section transitions where static settings cannot serve the whole song. Check the mix at quiet volume, on headphones and speakers if available, and in mono. Take breaks to reduce ear fatigue.

Export and review

Set the cycle range to the intended start and end, choose an appropriate uncompressed format such as WAV, confirm sample rate and bit depth for the delivery brief, and avoid clipping the output. Re-import the bounce into a new track or project to check start/end, glitches and overall level. Keep an unchanged version for comparison.

Teaching diagram: First mix workflow

Prepare → Static balance → Pan → Corrective EQ → Dynamics → Sends → Automation → Export/check

The order is a repeatable starting point, not a rule that forbids returning to an earlier step.

Logic Pro practical

Complete a 60–90 second mix in Logic Pro. Save versions at static balance, processing and automation stages. Export a WAV, re-import it and listen from start to finish. Make a short change log rather than endlessly tweaking.

Listening exercise

Compare the first static balance with the final mix at matched loudness. Note improvements in hierarchy, clarity, groove, depth and translation. Identify one remaining weakness without immediately reaching for another plugin.

Common mistakes

- Starting over with every new plugin idea.
- Mixing too loudly for long sessions.
- Exporting without checking the bounce.
- Changing many parameters between comparisons.

Completion task

Submit a WAV bounce, a screenshot of the mixer, a one-page mix notes sheet and a paragraph describing three deliberate decisions. Keep the original rough mix as a reference.