

21M.380 · MUSIC AND TECHNOLOGY
RECORDING TECHNIQUES & AUDIO PRODUCTION

MIXING ASSIGNMENT 1 (MX1)
MIXDOWN OF STEMS

DUE: WEDNESDAY, NOVEMBER 9, 2016, 9:30AM
SUBMIT TO: MIT LEARNING MODULES ▶ ASSIGNMENTS
5% OF TOTAL GRADE

1 Instructions

Create a mixdown from the stems that you prepared for your ED4 assignment. In an accompanying write-up, describe which problems you faced and how you have addressed them.

2 Guidelines

2.1 Source materials

The source materials for this assignment will be the sound files that you have submitted as your ED4 assignment.

2.2 Which software should I use?

Use Reaper, or whichever other DAW package you might have agreed on with the instructor. *You should refrain from the use of any plugins for this assignment.* Your stems from the ED4 assignment already include EQing and compression, and just for one more assignment, we will stay away from any reverberation or other processing. Focus instead on creating a good balance in terms of levels and panning, and on adjusting this balance dynamically through parameter automation, as described below.

2.3 Workflow suggestion

1. Import the finished stems from your ED4 submission into a new DAW session.
2. Set up a basic mix¹ with stationary fader level and panpot positions, which works throughout the entire piece.²

¹ Cf., Izhaki 2011b,c; Senior 2011a.

² Eargle (2003b, p. 328) suggests to set trims such that all faders are at unity, to provide visual reference to go back to once you introduce automation.

- (a) Build a basic stereo image by panning each mono stem to an appropriate position and (if needed) by adjusting the width and balance of any stereo stems.
 - (b) Set the fader levels of the individual stems. Do this with fresh ears and try not to spend too much time on it, but be prepared to go through several iterations of the process, with breaks in between.
 - (c) Render your static mix and check it on different playback systems for potential problems. The drums will almost certainly be too loud, and the bass frequencies are likely going to need further attention. Identify these issues, compare with professional productions, and then go back to the drawing board if needed.³
3. Once your stationary mix works, make it dynamic by automating parameters⁴ where it is beneficial. Focus on the following parameters (in order of importance):
- (a) Fader level of master output
 - (b) Fader levels of input channels
 - (c) Panpot positions of input channels (be careful not to overdo this)

4. Render your final mixdown.

- Reaper: `File >> Render >> Master mix`
- Ardour: `Session >> Export >> Export To Audio File(s) ...`
- Logic: `File >> Bounce >> Project or Section...`

As you are rendering, pay particular attention to the usual aspects.



- An appropriate master output level ($-1 \text{ dB}_{\text{FS}}$ to $-3 \text{ dB}_{\text{FS}}$ peak level; check the meter on your DAW's mixer)
 - Rendering the project according to the specified file format
 - Appropriate start and end of the rendering region (avoid mysterious silence at beginning and end)
5. Always evaluate your mix again the following day, no matter how tight your production schedule (Eargle 2003a, p. 330).

³ You might be tempted at this stage to revise parts of your ED4 assignment. However, I suggest that you try to work with the source files as they are. If you find yourself wishing you had done certain things differently for ED4 in retrospect, do describe these issues in your write-up.

⁴ Cf., Izhaki 2011a; Senior 2011b.

2.4 How to automate parameters in Reaper

Francis (2017, ch. 18) provides detailed information on how to automate parameters (fader levels, panpot positions, plugin parameters) in Reaper. As an example to get started, here is how to automate the volume fader level in Reaper:

1. Click  button of target track in track control panel (area to the left of timeline/edit window)
2. Select parameters to be automated: Volume and Pan
3. Automation envelope for each selected parameter appears below actual track
4.  + left-click on automation envelope to create a new point
5. Drag points around while holding left mouse button

For editing automation envelopes with the mouse, Reaper's *Trim/read* automation mode (which is selected by default) is probably the best choice.

2.5 Accompanying write-up

The purpose of the write-up is for me to have something to refer to whenever questions arise regarding the editing decisions you have made. Keep this document very concise (2–3 pages max.) and informative, and do not make it too verbose. This should really be an mixing, not a writing assignment.

Your writeup should include a legible representation of your basic mix settings, including fader levels in dB and meaningfully quantified panpot positions.⁵ These settings can either be provided in tabular form or – preferably – as a (series of) legible screenshot(s) embedded into your document. In addition, a screenshot of your entire project's main editing window should provide a rough overview of any automation envelopes that you have applied. Make sure all tracks, curves, and parts of your project are visible.

⁵ Panpot positions are measured differently in different software packages. Provide them in a format that can be interpreted, such as "60% L", or "9 o'clock R" etc. Do not provide meaningless numbers that neither carry a unit, nor refer to any scale maximum. Better yet is to provide screenshots.

3 Assessment criteria

Your mixdown should demonstrate that you can successfully apply the following studio techniques in a multitrack production.

- Creating an appropriate level balance between the tracks

- Panning the individual tracks across the stereo base such as to create an appropriate spatial image
- Using parameter automation to make faders and panpots dynamic in a way that benefits the mix
- Rendering the final mix correctly according to specifications

4 Submission format

Submit your assignment as a single archive `submission.zip`, which should be structured as follows:⁶

```

submission.zip
├── writeup.pdf (2–3 pages)
└── mix.flac (stereo, 44.1 kHz, 24 bit)

```

⁶ Please make sure you stick closely to the requested submission format. Detailed guidelines can be found in the syllabus.

- Double-check your rendered `mix.flac` to ensure that it complies with the requested format (stereo, .flac, 44.1 kHz, 24 bit). There are many ways in which this information can be retrieved from an audio file. Find a method that you are comfortable with and that works for your specific software environment.
- The submitted audio file should have the same duration as the original source files. Avoid mysterious silence at the end of a file, for which Reaper's `File >> Render... >> Render bounds` option might be useful.

References & useful resources

- Eargle, John (2003a). *Handbook of Recording Engineering*. 4th ed. New York: Springer. 436 pp. MIT LIBRARY: 002277189. Electronic resource. Hardcopy version at MIT LIBRARY: 001137896.
- (2003b). "Mixing and mastering procedures." In: *Handbook of Recording Engineering*. 4th ed. New York: Springer. Chap. 22, pp. 326–37. MIT LIBRARY: 002277189. URL: http://link.springer.com.libproxy.mit.edu/content/pdf/10.1007/0-387-28471-0_22.pdf. Requires MIT library login.
- Francis, Geoffrey (2017). *Up and Running. A REAPER User Guide*. URL: <http://reaper.fm/userguide.php> (visited on 09/19/2017).

- Izhaki, Roey (2011a). "Automation." In: *Mixing Audio. Concepts, Practices and Tools*. 2nd ed. Focal Press. Chap. 27, pp. 470–8. ISBN: 978-0240522227. MIT LIBRARY: 002302617. URL: http://libproxy.mit.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=nlebk&AN=454037&site=ehost-live&ebv=EB&ppid=pp_470 (visited on 11/22/2014). Requires MIT library login (max. 1 reader at a time).
- (2011b). "Related issues." In: *Mixing Audio. Concepts, Practices and Tools*. 2nd ed. Focal Press. Chap. 5, pp. 46–53. ISBN: 978-0240522227. MIT LIBRARY: 002302617. URL: http://libproxy.mit.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=nlebk&AN=454037&site=ehost-live&ebv=EB&ppid=pp_46 (visited on 11/22/2014). Requires MIT library login (max. 1 reader at a time).
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- Senior, Mike (2011a). "Building the raw balance." In: *Mixing Secrets for the Small Studio*. 1st ed. Focal Press. Chap. 8, pp. 119–42. ISBN: 978-0240815800. MIT LIBRARY: 002092991. Electronic resource. Accompanying information and sound examples: <http://www.cambridge-mt.com/ms-ch8.htm>.
- (2011b). "Buss [sic] compression automation, and endgame." In: *Mixing Secrets for the Small Studio*. 1st ed. Focal Press. Chap. 19, pp. 273–300. ISBN: 978-0240815800. MIT LIBRARY: 002092991. Electronic resource. Accompanying information and sound examples: <http://www.cambridge-mt.com/ms-ch19.htm>.

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