

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

THE ART OF SOUND RECORDING

SESSION 1 · WEDNESDAY, SEPTEMBER 7, 2016

1 Syllabus

- Instructor info
- Course description
- Intended learning outcomes

2 Student selection process

- Class is typically overenrolled by a factor of 2 or 3
- Music majors, minors, concentrators and upperclassmen will generally be prioritized
- But your personal background and interests will also be considered
- Please fill out the provided questionnaire
- I will email you before second class meeting on Mon, 9/12, announcing either that
 - you are accepted and need to confirm, or
 - I cannot offer you a place this semester, or
 - you have been put on the waiting list.

3 Syllabus, ctd.

- Locations of interest
- Recording equipment at MIT
- Required hardware and software
- Recommended textbooks
- Assignments, quizzes, and grading
- Schedule

4 Music (and) technology

4.1 What qualifies as music technology?

- Discussion: What do we think of as 'music technology'?
 - _____
 - _____
 - _____
 - _____
- Discussion of pre-class reading (RDOO assignment, Eno 2004):
The studio as a compositional tool
- Artists of 20th century realize creative potential of studio technology across musical genres (e.g., Gould 2004)

4.2 What do we need to record music?

Let's brainstorm together:

- _____
- _____
- _____
- _____
- _____
- _____

4.3 The music production process

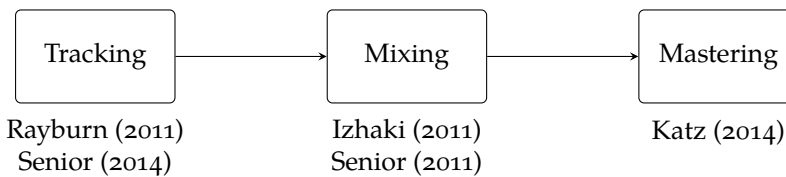


FIGURE 1. The music production process (after Eargle 2003, p. 326)

4.4 Words, words, words...

Music technology glossaries and jargon busters:

- Bohn (2017)
- Los Senderos Studio (2017)
- Recording Institute Of Detroit (2014)
- Sound on Sound (2014)

5 Technologically mediated listening

Three layers of technological mediation:

5.1 Tympanic principle¹

- Sound can be transferred from one medium to another.

The vibrating diaphragm that allowed telephones and phonographs to function was itself an artifact of changing understandings of human hearing. (Sterne 2003, p. 7)

- What is the “vibrating diaphragm” that Jonathan Sterne refers to?

¹ Sterne 2003, pp. 34 f.

5.2 Electroacoustic principle

- Special case of tympanic principle: Sounds can be represented by electrical signals.
- Electric medium offers many advantages for sound representation

5.3 Digital principle

- Additional layer: Continuous signals (such as electrical signals representing sound) can be represented as streams of discrete numbers.
- Conversion through ADC (analog-digital converter) and DAC
- Affords additional amenities, such as digital signal processing (DSP)

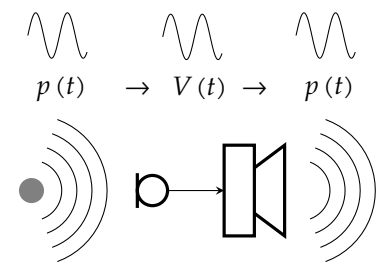
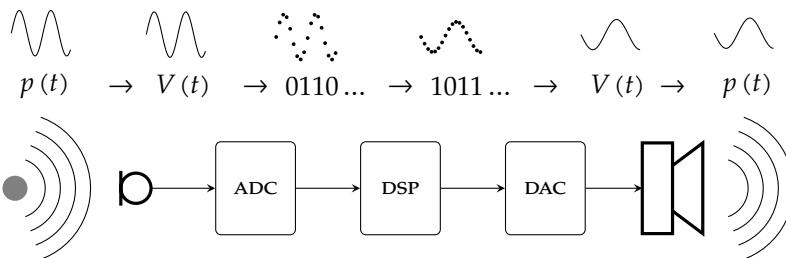


FIGURE 2. Electroacoustic reproduction chain

FIGURE 3. Digital reproduction chain

6 Preview

6.1 WR1 assignment

How do Edison’s speculations about phonograph applications compare to actual use of sound recording technology today?

6.2 RD01 assignment

- Short video documenting Christina Kubisch’s *Electrical Walks* (2003)
- Opening a discussion about the physics of sound from an artistic angle

References & further reading

- Bohn, Dennis A. (2017). *Pro Audio Reference. Concepts, terminology, standards, history, and assorted surprises*. URL: <http://www.aes.org/par/> (visited on 01/30/2017).
- Eargle, John (2003). *Handbook of Recording Engineering*. 4th ed. New York: Springer. 436 pp. MIT LIBRARY: 002277189. Electronic resource. Hardcopy version at MIT LIBRARY: 001137896.
- Eno, Brian (2004). "The studio as a compositional tool." In: *Audio Culture. Readings in Modern Music*. Ed. by Christoph Cox and Daniel Warner. New York: Continuum, pp. 127–30. ISBN: 978-0-8264-1614-8. Available at: MIT Learning Modules ▶ Materials.
- Gould, Glenn (2004). "The prospects of recording." In: *Audio Culture. Readings in Modern Music*. Ed. by Christoph Cox and Daniel Warner. New York: Continuum, pp. 115–26. ISBN: 978-0-8264-1614-8.
- Izhaki, Roey (2011). *Mixing Audio. Concepts, Practices and Tools*. 2nd ed. Focal Press. 600 pp. ISBN: 978-0240522227. MIT LIBRARY: 002302617. Hardcopy and electronic resource. On course reserve at the Lewis Music Library. Accompanying sound examples: <http://www.taylorandfrancis.com/cw/izhaki-9780240522227/p/resources/>.
- Katz, Bob (2014). *Mastering Audio. The Art and the Science*. 3rd ed. Burlington, MA: Focal Press. 408 pp. ISBN: 978-0240818962. MIT LIBRARY: 002307049. On course reserve at the Lewis Music Library.
- Los Senderos Studio (2017). *Recording Studio Glossary*. URL: <http://lossenderosstudio.com/glossary.php> (visited on 01/12/2017).
- Rayburn, Ray A. (2011). *Eargle's Microphone Book. From Mono to Stereo to Surround. A Guide to Microphone Design and Application*. 3rd ed. Focal Press. 480 pp. ISBN: 978-0240820750. MIT LIBRARY: 002136103. On course reserve at the Lewis Music Library.
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- (2014). *Recording Secrets for the Small Studio*. 1st ed. Focal Press. 460 pp. ISBN: 978-0415716703. MIT LIBRARY: 002400271. On course reserve at the Lewis Music Library.
- Sound on Sound Magazine (2014). *Jargonbuster. Technical Terms Explained*. URL: <http://www.soundonsound.com/information/Glossary.php> (visited on 08/01/2014).
- Sterne, Jonathan (2003). *The Audible Past. Cultural Origins of Sound Reproduction*. Durham and London: Duke University Press. 450 pp. MIT LIBRARY: 001141682.

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