Universität der Künste Berlin

Sound Studies and Sonic Arts

Summer Term 2026
Phase Focus
Module Theory, Practice
Course Title **Feedback as Material and Method** | Workshop
Course Times and Location 20 – 24 April | LIE 316
Instructor Dr. Luc Döbereiner
Email luc.doebereiner@posteo.de
Office Hours Upon request after class
Possible Credit Points Theory 2CP/4CP (G), Practice 2CP/4CP (G), Free Focus 2CP/4CP (NG)

Course Description

Feedback is one of the most fundamental principles in sound and music: a signal is routed back into itself, and from this simple loop emerge oscillation, stability, chaos, and self-organisation. This workshop explores feedback as both a technical and conceptual practice, moving from basic gain-and-filter loops and no-input mixing through nonlinear dynamics and chaotic systems to spatially situated feedback networks using microphones, speakers, and resonant materials.

Practical work is combined with close reading and discussion of selected texts from cybernetics, sound art, and contemporary theory, including writings by Wiener, Beer, Collins, Di Scipio, Radigue, and Mitchell. These readings provide a framework for understanding feedback not only as a sonic technique, but also as an epistemological, aesthetic, and political figure shaping how systems regulate, adapt, and produce meaning.

The course alternates between hands-on laboratory sessions and in-class reading and discussion. Participants will work with analog and digital feedback systems, develop their own instruments and processes, and learn to analyse and shape their dynamic behaviour. The workshop is aimed at composers, sound artists, and musicians with a basic working knowledge of audio signal processing. No specific software expertise is required.

Requirements for attending

Basic familiarity with audio signal processing (e.g. working with filters, delays, mixing). Please bring a laptop, audio interface, headphones, and a microphone.

max. 15 students

Exam / Credit Points

2 Credit Points (graded: Theory, Practice; not graded: Free Focus): Regular attendance and project presentation in class

Consecutive assignment leading to a total of 4CP for the class (optional, graded: Theory, only the consecutive assignment is graded; not graded: Free Focus): a theory term paper (5–8,000 words) due Nov. 1st.

OR

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Consecutive assignment leading to a total of 4CP for the class (optional, graded: Practice, only the consecutive assignment is graded; not graded: Free Focus): an installation, fixed media work or performance + documentation (incl. development, statement/reflection, max. 5 pages) due Oct. 1st.

Schedule

Day 1 — Foundations: What Is Feedback? Introduction to feedback as a sonic and conceptual practice. Overview of feedback typology with listening examples. Practical: positive and negative feedback, first-order systems, no-input mixer.

- Pickering, Andrew. 2025. "Cybernetic Art." In *The Bloomsbury Encyclopaedia of New Media Art*, ed. Charlie Gere.
- Lucier, Alvin. 2002. "My Affairs with Feedback." *Resonance* 9 (2).
- Aufermann, Knut. 2002. "Feedback is Everywhere." *Resonance* 9 (2).

Day 2 — Time, Cybernetics, and the Politics of Control Cybernetics, irreversible time, and the politics of feedback: Beer's liberty machine vs. Tiqqun's cybernetic governance. Practical: nonlinearity in feedback loops, iterated maps, logistic map sonification, routes to chaos.

- Wiener, Norbert. (1948) 2019. *Cybernetics.* Chapter 1: "Newtonian and Bergsonian Time" (excerpt).
- Beer, Stafford. (1974) 1993. *Designing Freedom.* Lecture 3: "A Liberty Machine in Prototype."
- Tiqqun. (2001) 2020. *The Cybernetic Hypothesis.* Semiotext(e) (excerpt).

Day 3 — Materiality: Feedback Through Space and Bodies Feedback as a material and spatial practice: acoustic feedback, site-specificity, the room as instrument. Listening: Radigue, Collins. Practical: building physical feedback loops with microphones, speakers, contact transducers, and resonant surfaces.

- Collins, Nicolas. 2021. "Improvising with Architecture: Pea Soup and Related Work with Audio Feedback." *Resonance* 2 (2): 168–181.
- Hutton, Jo. 2024. "Points of Balance and the Infra-Thin in Éliane Radigue's Endless Music." *Contemporary Music Review* 42.

Day 4 — Complexity: Chaos, Adaptation, and Self-Organisation Ecosystemic composition, emergence, and the question of control. Practical: chaos sonification, feature extraction as feedback, open experimentation combining techniques from Days 1–3. Planning session for Day 5 presentations.

- Di Scipio, Agostino. 2022. "A Relational Ontology of Feedback." *ECHO* 3.
- Mitchell, Melanie. 2009. *Complexity: A Guided Tour.* Chapter 2: "Dynamics, Chaos, and Prediction".

Day 5 — Synthesis, Presentations, and Discussion Feedback delay networks and waveguide synthesis. Student presentations and round-table discussion.

- Magnusson, Thor, Chris Kiefer, and Halldór Úlfarsson. 2022. "Reflexions upon Feedback." *NIME 2022*.