

# Session 1

## Core basics of modular synthesis

VA309 Modular Sound Synthesis @ EKA  
Aubery Lis

Welcome to Hell

it's not that bad I promise

# Organisational

## Classes:

each Wednesday, 17:45 @ B308

## Grading:

- 7 or more sessions attended out of 10 (30% grade)
- Homework completed (10% grade each, 4 total)
- Final project done (30% grade)

50-59% = 1, 60-69% = 2, 70-79% = 3, 80-89% = 4, 90%+ = 5

## [!!!] Online resource:

Presentations, files, etc are [HERE](#) (click that!)

# About me

- Name/surname: **Aubery Lis**
- Making electronic music since 2012
- Designing sound hardware since 2017
- Hosting a [synth-DIY educational resource](#)

## Contact info:

- Slower: email → [synthfoxmodular@gmail.com](mailto:synthfoxmodular@gmail.com)
- Faster: telegram → [@kouyou](#) [kouyou elysian]
- **I won't answer anywhere else!**

# About you

## **Tell about yourself! Be sure to mention:**

- How would you like to be addressed: names, pronouns, ...
- Why did you enroll in this course
- What is your experience with sound synthesis - none is OK!
- What do you expect to learn here
- *Anything else you want to share, too!*

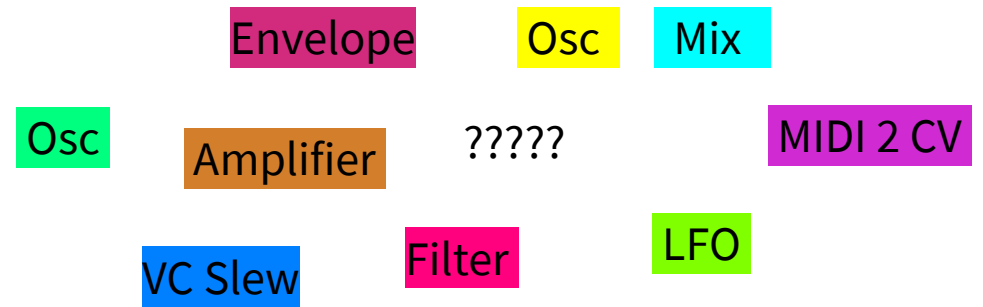
# What is sound? How to make it with electricity?

- Sound: areas of lower and higher air pressure that move into our ears and vibrate stuff in there (mechanical)
- Electric current: flow of energy through a conductor that does cool stuff, like lamps and fans
- Transducer: a device that can convert one type of energy (electric) to another (mechanic)
- → can one produce sounds using a battery and a speaker?

# What is a sound synthesizer?

- A weird question with many answers
- No definitive answer to what was the first one
- However, the direct ancestors of modern synthesizers (modular or not) is lab equipment “mis”used for musical purposes
- What hardware synthesizers did you play, if any? How old are they? Do you think they are modular?

# Hard-Wired VS Modular





# Modules

- Think of large-scale food making, with “modules” being machines (or people)
- One machine dispenses dough, to another machine that mixes it with water, pours to one that shapes it into circles, some guy takes it to an oven, and you get cookies
- Synthesizer modules are the same thing! Some produce sound, some process sound produced by other modules, some modules can control how other modules behave...

# Modules in a Eurorack system

**Eurorack** – a format of modules that a lot of module making companies adhere to. This allows to combine different small modules from different manufacturers into a custom, purpose-fit system.

**Signals** in a Eurorack modular system are always just a voltage. Be it a sound, a tempo pulse, a keyboard control output, anything is just a voltage.

That's why manufacturers don't have to agree on a ton of standards, unlike in digital world!

# Modules in a Eurorack system

## Main control elements:

**Jacks** – module inputs and outputs. These are the most important ones! You program the modular by connecting modules.

**Knobs** and other continuous controls (sliders, dials, ...)

**Switches** and other select-type controls (buttons, rotary switches, ...)



# Connection rules

**Outputs** output voltage signals.

**Inputs** expect a voltage to come into them.

**An output can be patched to 1 or more inputs;** then every input will receive whatever the output is producing.

**Two or more outputs can not be patched into the same input:** they will not mix together, and in some cases may damage the system.

# Demo time!

Let's build a basic patch!

