

# CRMT150 The Electronic Toolkit

## Week 1: Module Launch

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# Listening



# Listening




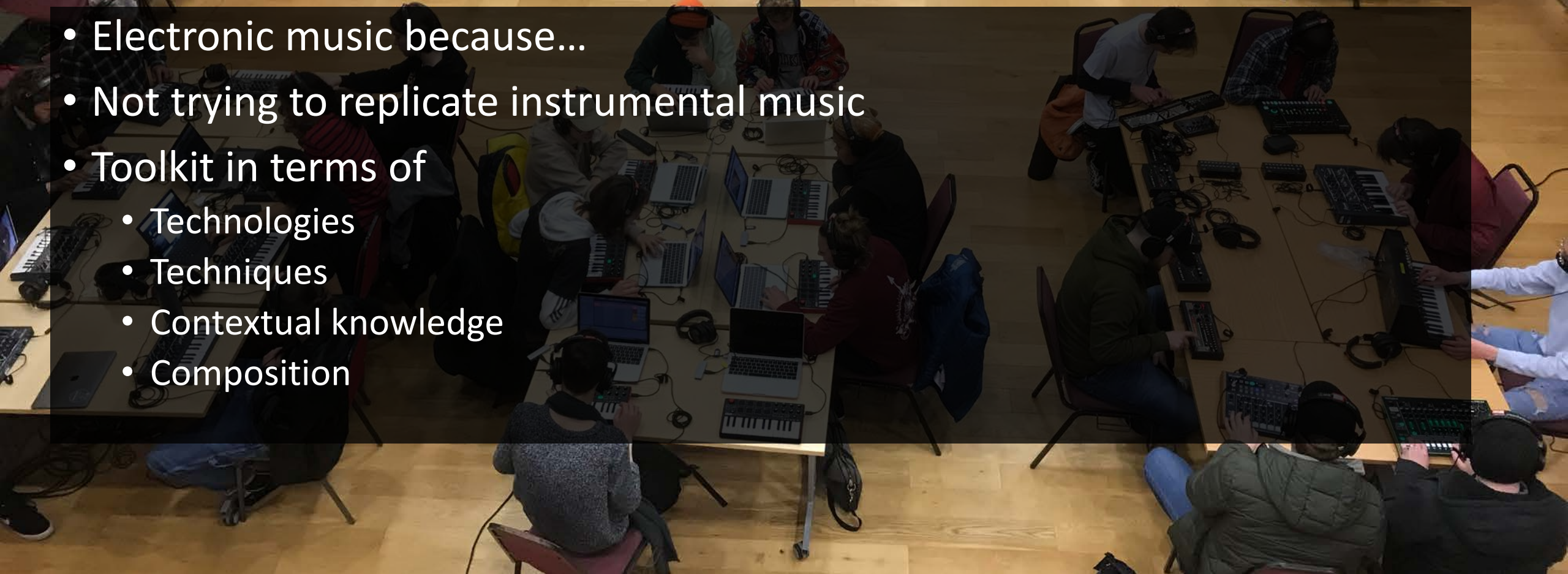
- You are only as good as your record collection!
- What will inspire you for your next tracks?
- You can use music as research sources!
- What are your 'essential' electronic tracks?
- Post links to the Padlet (link on Learning Space).

# Module Overview



# Module Overview: Aims

A music studio with a grand piano, speakers, and a desk with equipment.

- Electronic music because...
  - Not trying to replicate instrumental music
  - Toolkit in terms of
    - Technologies
    - Techniques
    - Contextual knowledge
    - Composition
- 
- A group of people working at computers in a music studio.

# Module Overview: Context

A photograph of a music production studio desk. In the foreground, a Roland TR-8 drum machine is visible, featuring a green and black color scheme and a red LED display showing 'tr-8'. To its left is an Arturia MIDI controller with a black and purple design. Several pairs of headphones are scattered on the desk, some with 'audio' branding. In the background, a black keyboard is partially visible. The desk is made of light-colored wood.

- Core / Professional Music Practice
- Art of Production
- Supersonic
- Immersive Audio
- Music for Moving Image
- Creative Performance Technology
- Final year study

# Module Overview: Teaching Plan



1: Module Launch | Software Synthesis

2: Early Electronic Music | Synthesis Workshop

3: Musique Concrète & Elektronische Musik | Synthesis Workshop

5: Popular Electronic Music 1970-1985 | Composition Workshop

6: Detroit Techno, House & Beyond | Composition Workshop

7: Tutorials

8: Sample-Based Music | Composition Workshop

9: Microsound | Granular Synthesis Workshop

10: Electroacoustic Music | Composition Workshop

11: Visuals & Gesture | Video Sensor Workshop

12: Current Trends | Composition Workshop

13: Formative Feedback Tutorials

15: Summative Feedback Tutorial

# Module Overview: Assessment

A photograph of a music production studio desk. In the foreground, a Roland TR-8 drum machine is visible, featuring a grid of pads and various knobs. To its left is a Pioneer DJ mixer with multiple channels and a central crossfader. Several pairs of headphones are scattered on the desk, some connected to cables. In the background, a keyboard is partially visible. The desk is made of light-colored wood, and the overall scene is well-lit.

- Assessment 1: 1 Track + 700 words
- Assessment 2: 2 Tracks + 1500 words
  
- See Assessment Briefs on Learning Space
- Ask questions in-class, on the Module Forum or Office Hours
- Make use of formative feedback



# Module Overview: Learning Space

- Assessment Details
- Resources
- Module Forum
- Weekly Materials

# Introduction to Synthesis

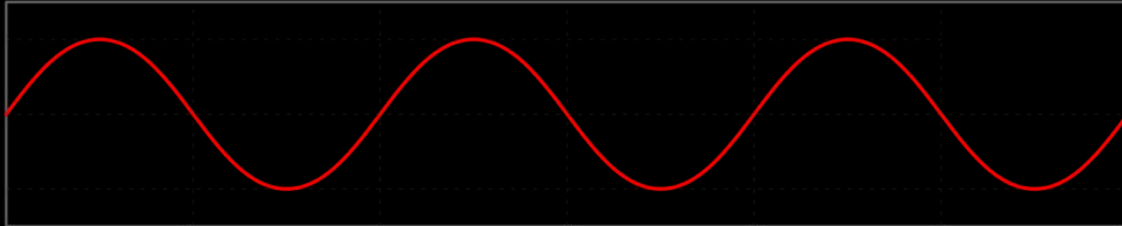


# Introduction to Synthesis: Types

- Subtractive: removing frequencies
- Additive: adding frequencies together
- Wavetable: short section of an audio file
- FM: multiplying a 'carrier' and 'modulator'
- Physical modelling: imitate objects e.g. strings
- Granular: 'grains' of an audio file
- Concatenative: library of audio

# Introduction to Synthesis: Oscillators

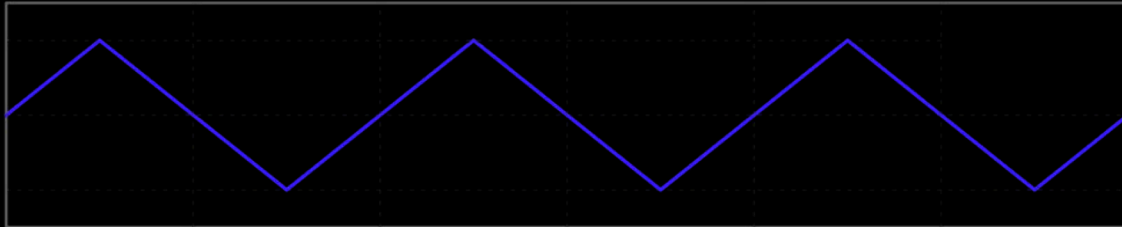
Sine



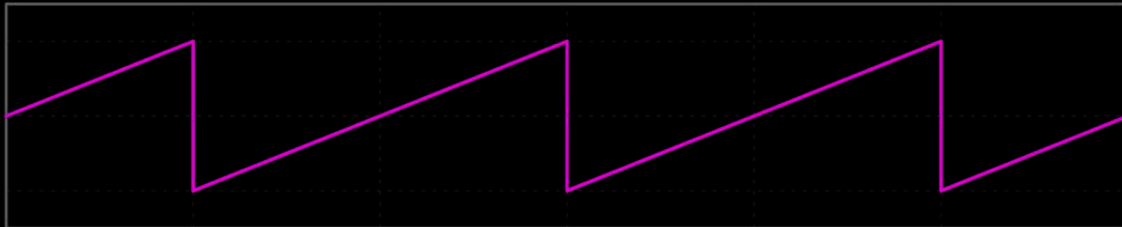
Square



Triangle



Sawtooth



# Introduction to Synthesis: Filters

Low-pass



High-pass



Band pass



Band reject



Filter strength  
measured in dB /  
octave

Resonance:  
boost at cutoff  
frequency

# Introduction to Synthesis: Envelopes

Attack

Decay

Release



# Introduction to Synthesis: LFOs



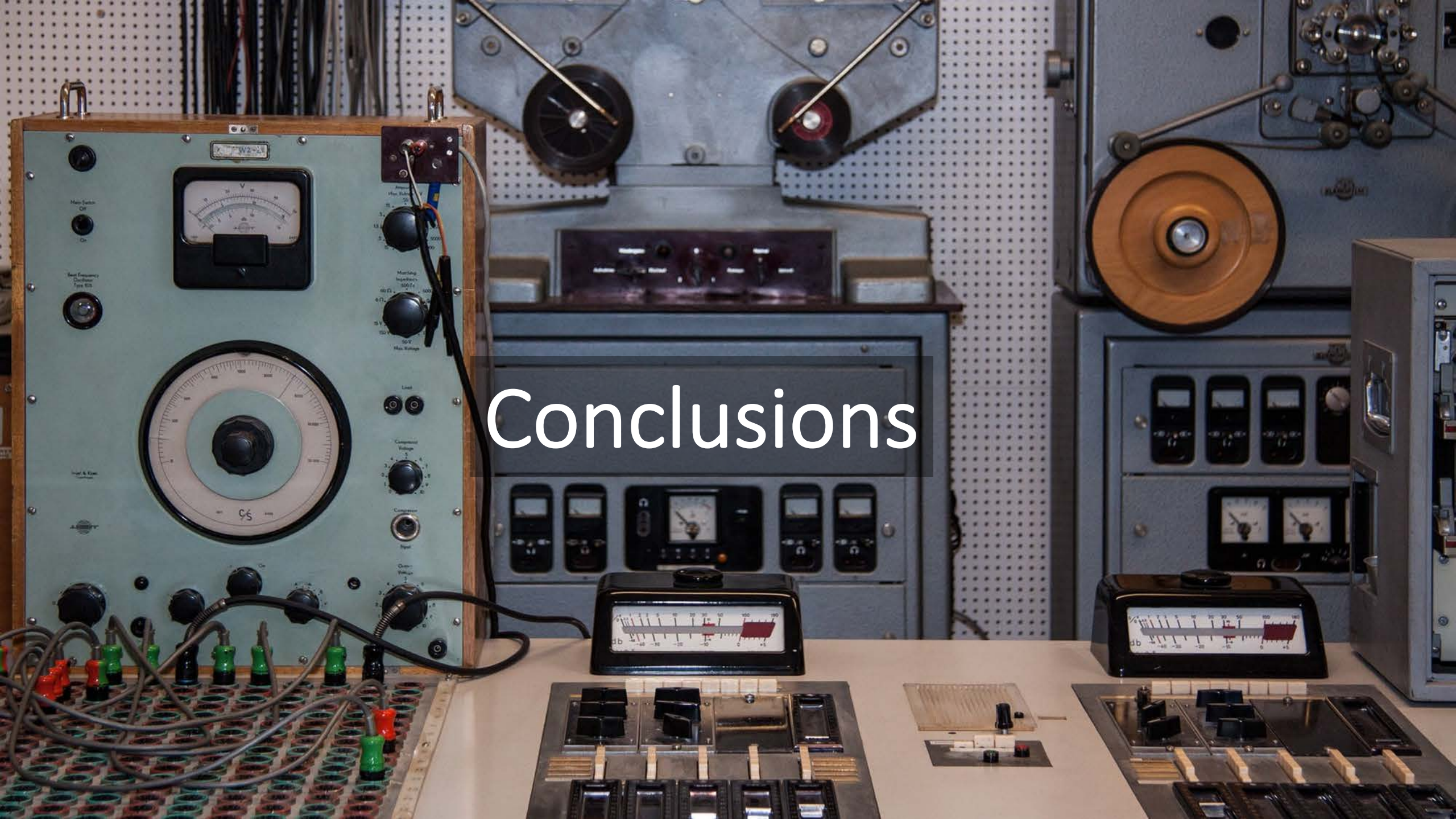
- 20 Hz – 20000 Hz: continuous sound
- Below 20 Hz: discrete events
- Low Frequency Oscillators can be mapped to synthesis parameters to create variation and interest
- Can also be further modulated by envelopes



# Introduction to Synthesis: MIDI & CV

- MIDI: Musical Instrument Digital Interface
  - 8 bits
  - 7 bits for values
- CV: Control Voltage
  - Used in hardware
  - Ableton Live: CV Tools

# Conclusions



# Conclusions



- Importance of listening
- Module overview: aims, context, teaching, assessment, LS
- Introduction to synthesis



Next Steps

# Next Steps



- Workshop
- Independent Study
- Announcements