

# Music 172 Wk. 1

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MIDI & PD

# MIDI communication

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- From Synth to Keyboard to Computer
- Over serial cable - only one direction
- Used mainly to communicate performance information - keys, pedals, faders, switches, knobs
- Pretty slow - roughly one message per millisecond
- A MIDI USB interface needed for computer
- MIDI also transmitted over USB, WIFI and network

# MIDI Messages

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- Each MIDI message has a status byte and 1-2 data bytes.
- Status byte is split into message type and channel number.
- Status: 8X (Note Off) - Data: Note, Velocity  
Status: 9X (Note On) - Data: Note, Velocity (0 = off)  
Status: AX (Poly Aftertouch) - Data: Note, Pressure  
Status: BX (Control) - Data: Controller, Value  
Status: CX (Program Change) - Data: Program  
Status: DX (Aftertouch) - Data: Amount  
Status: EX (Pitch Wheel) - Data: ValueMSB, ValueLSB

# MIDI errata

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- Controllers 120-127 are special commands (120,0: all sound off; 121,0: reset controllers; 123,0: all notes off; etc.)
- Status F0 starts a system exclusive message. This is a variable length message for a specific piece of equipment. Status F7 ends it.
- Status F1,F2,F3,F8,FA,FB,FC contain clock and sequence information
- Status F6 - tune your instrument, Status FF reset everything
- Status 1X to 7X - Running Status

# PD MIDI objects

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- notein, noteout - note on and off (status 9 & 8)
- ctlin, ctlout - controllers (status b)
- polytouchin, polytouchout - poly aftertouch (status a)
- touchin, touchout - aftertouch (status d)
- pgmin, pgmout - program change (status c)
- bendin, bendout - pitch bend (status e)
- sysexin - system exclusive (status f0)