

**Introduction to Music Technology: Analog**  
MUS 130 01

Tuesday & Thursday 2:00 p.m. – 2:50 p.m.  
2 credits  
Location: Benildus 238

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**Midterm Exam Study Guide**

The midterm exam will consist of questions and sample problems related to the course content thus far in the semester. You should be able to provide brief definitions of key terms and concepts, and apply them in explaining/solving problems. A list of representative terms, concepts, etc., follows, sorted by course topic, is as follows:

Acoustics

- Simple Harmonic Motion
- Frequency
- Amplitude
- Sine wave
- Octave
- Fourier Analysis
- Periodic waves
- Fundamental
- Overtone
- Partial
- Harmonic series
- Harmonic
- Waveshape
- Frequency spectrum
- Spectral content
- Sawtooth wave
- Timbre
- Non-harmonic partial
- Noise
- Noise band
- Envelope
  - Attack
  - Decay
  - Sustain
  - Release
- Phase

- Compression
- Rarefaction
- Sound wave
- Velocity
- Wavelength
- Standing wave
- Wave propagation
- Absorption
- Reflection
- Transmission
- Diffraction
- Resonance
- Resonant frequency

#### Electricity

- Conductor
- Insulator
- Circuit
- Short Circuit
- Closed Circuit
- Open Circuit
- Voltage
- Resistance
- Current
- Capacitance
- Ohm's Law ( $E=I \cdot R$ )
- Direct Current
- Alternating Current
- Analog Wave
- Power
  - Watts
- Impedance

#### Transducers

- Transducer
- Electromagnet
- Speakers
  - Woofers
  - Midrange
  - Tweeter
  - Cone
  - Voice coil
  - Magnet
  - Polarity
  - Nominal Impedance
  - Continuous Power rating
  - Frequency response
  - Dispersion pattern

## Microphone

- Element type
  - Dynamic/Moving coil
  - Condenser
  - Ribbon
- Polar response pattern
  - Omni-directional
  - Uni-directional
    - Cardioid
    - Hyper-cardioid
  - Bi-directional/Figure 8
- Frequency response
- Transient response
- Phantom power

## Signal Path

- Audio Signal
- Signal path
- Microphone level
- Line level
- Instrument level
- Speaker level
- Gain staging/structure

## Cables & Connections

- Unbalanced
- Balanced
- Mono
- Stereo
- 1/4" jack/plug (phone)
- 1/8" jack/plug (mini)
- TRS
- TS
- RCA jack/plug (phono)
- XLR jack/plug
- RF interference
- Common Mode Rejection Ratio (CMRR)
- Patchbay

## Amplifiers

- Mic pre-amplifiers
- Unity gain amplifiers
  - Summing amplifiers
  - Splitting amplifiers
  - Buffer amplifiers
- Power amps
  - Continuous Power Rating
  - Load Impedance
- Voltage controlled amplifiers