Music 192A Syllabus 2017

(Readings in blue, assignments in red)

Week 1: Introduction and overview: sound, hearing, electromagnetism.

Monday: Course overview, introduction to acoustics and human hearing
Course Notes Reading: Sound, Hearing

Wednesday: Introduction to electromagnetism: the passive electronic devices - basic concepts
Course Notes Reading: Electronics (Part 1)
[Chapters 1, 2 and 3, The Science of Sound Recording.] <- Chapters available on 192a web site
Optional reading: Chapters 1 and 2, Sound and Recording, 6th Edition;

**Homework:** Assignment 1 (Due Monday week 3)

Week 2: Basic electrical circuits, devices, signals.

Monday: Simple electronic circuits – voltage divider and its applications, simple audio filters
Wednesday: Audio circuit analysis, resonance, audio signal characterization and measurement

Course Notes Reading: Electronics (part 2)
[Chapter 4, The Science of Sound Recording]

Week 3: Microphones: transducer types and physics of transduction.

Monday: Microphone types: dynamic and capacitor principles, **Homework 1 due.**
Wednesday: Microphones in use – polar patterns, studio demo

Course Notes Reading: Microphones (part 1)
[Chapter 5, The Science of Sound Recording]
Optional reading: Chapter 3, Sound and Recording, pp 47-69.

**Studio Exercise 1** (Due Wednesday week 5)

Week 4: Stereo and multi-microphone recording techniques.

Monday: Stereo theory – principles of sound localization
Wednesday: stereo miking techniques – studio demo

Course Notes Reading: Microphones (part 2)
Optional reading: Chapter 16, Sound and Recording; Microphone Handbook; Mic It!

**Homework:** Assignment 2 (Due Wednesday week 5)

Week 5: Active electronics, shielding, grounding, and signal interconnection.

Monday: Audio circuits, impedance matching, active electronics – transistors, vacuum tubes, op-amps, **Homework 2 due**
Course Notes Reading: Circuits

Wednesday: Shielding and grounding, power distribution, **Studio Exercise 1 due**
Course Notes Reading: Interconnection and shielding
[Chapter 6, The Science of Sound Recording]
Optional reading: Chapter 12, Sound and Recording
**Homework:** Assignment 3 (Due Monday week 6)  
**Studio Exercise 2** (Due Wednesday week 7)

**Week 6:** *Mid-term exam*

**Monday:** Review of material so far, **Homework 3 due**

**Wednesday:** In-class Midterm

Optional reading: Chapter 5, Sound and Recording

**Week 7:** *Mixing consoles and monitoring.*

**Monday:** Mixing consoles

**Wednesday:** Monitoring  
**Studio Exercise 2 due**

- **Course Notes Reading:** Mixing Consoles, Monitors  
  [Chapter 7, The Science of Sound Recording]  
  Optional reading: Chapter 6 & 7, Sound and Recording

**Week 8:** *Theory of magnetic recording, analog & digital recorders*

**Monday:** Theory of analog magnetic recording

**Wednesday:** Practical analog recorders and their care and maintenance

- **Course Notes Reading:** Magnetic Recording  
  [Science of Sound Recording Chapter 7]  
  Optional reading: Chapter 8, 9, Sound and Recording

No Class – Thanksgiving week (Nov. 20-24)

**Week 9:** *Introduction to Digital Audio, Analog-to-Digital conversion*

**Monday:** Sampling, digital theory

**Wednesday:** Digital recording systems

- **Course Notes Reading:** Sampling  
  [Chapter 8, The Science of Sound Recording]  
  Optional reading: Chapter 10, Sound and Recording

**Homework:** assignment 4 (Due week 10)

**Week 10:** **Monday** Review session, **Homework 4 due** (Final Wednesday)

- **Final:** Wednesday, Dec. 6, 10:30 am (regular class time)