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** (Dead week) Review session, **Homework 4 due** (no class Wednesday)

**Final:** Thursday, Dec. 14, 8:30 am