

## **SAMP IV: MUS 345 Acoustics for Musicians**

**CRN:13146**

Instructor: Anwyn Willette

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Office Hours: LH 243D MWF 11:30-12:30 and by appointment

Class Meeting Time and Place: TTH 10:30-11:45 AM, LH-326F

### **REQUIRED MATERIALS**

Text: Master Handbook of Acoustics Fifth Edition (*MHA*) by F. Alton Everest and Ken C. Pohlmann

<http://www.roletech.net/books/HandbookAcoustics.pdf>

The Physics of Music and Musical Instruments (*PMMI*) by David R Lapp

<http://kellerphysics.com/acoustics/Lapp.pdf>

### **COURSE OBJECTIVES**

Students will develop a fundamental understanding of various acoustical concepts and how they relate to music performance, production, and audio recording. Students will demonstrate the ability to solve acoustical problems using basic mathematical equations and apply the results to real world production situations.

### **ATTENDANCE AND GRADING POLICIES**

Attendance is required at every class, and contributes to the Participation component.

Tardiness is not acceptable, since it shows a lack of consideration and is disruptive. Please be considerate and be on time. The final grade will be computed by averaging these components:

Assignments	50%
Quizzes	20%
Midterm	15%
Final Exam	15%

Assignments are only accepted at the time they are due. If you have a documented, excused absence an assignment may be turned in at the very next class meeting or earlier. Written assignments and compositions are evaluated on both objective and creative merit. Letter grades will be given according to the following scale, with the upper three points in each range earning a "+" and the lower three points earning a "-":

A	-	90 – 100%
B	-	80 – 89%
C	-	70 – 79%

D	-	60 – 69%
F	-	59% or below

It is possible for every student in this course to earn an A. This is my goal, and I hope it is yours. To earn an A, you will need to do a few basic things:

- Attend class regularly and participate
- Hand in all assignments on time
- Study for the exams
- Make a solid effort in your class project

Please do these things for yourself. I will not be assigning you a grade; you will earn whatever grade you receive with effort. This effort will be rewarded in many ways.

## **COURSE OUTLINE**

<b>Week</b>	<b>Topics and Activities</b>
1	(MHA) Chapter 1 Fundamentals of Sound
2	(MHA) Chapter 2 Sound Levels and the Decibel (MHA) Chapter 3 Sound in the Free Field
3	(MHA) Chapter 4 The Perception of Sound
4	(PMMI) Instrument Resonance
5	(PMMI) Modes, Overtones, and Harmonics (PMMI) Musical Scales
<b>Midterm Exam</b>	
6	(PMMI) Stringed, Wind, and Percussion Instruments
7	(HMA) Chapter 6 -9 Reflection, Diffraction, Refraction, Diffusion
8	Chapter 11 Reverberation
9	Chapter 12 Absorbstion Chapter 13 Modal Resonance
10	Chapter 20 Acoustics of Control Rooms Chapter 22 Acoustics of Small Recording Studios Chapter 23 Acoustics of Large Recording Studios

Final Projects Due  
**Final Examination**

**FOR STUDENTS WITH DISABILITIES**

My goal is to create a learning environment that is equitable, useable, inclusive, and welcoming. If any aspects of instruction or course design result in barriers to your inclusion or learning, please let me know. The Disability Resource Center (DRC) provides reasonable accommodations for students who encounter barriers in the learning environment. If you think you have a disability and need to discuss accommodations, visit the DRC in 116 Smith Memorial Student Union, or call 503-725-4150.

If you already have accommodations, please contact me to make sure that I have a faculty notification letter and discuss your accommodations. If you need accommodations for tests and quizzes, please schedule your tests to overlap with the time the class is taking the test.

**ACADEMIC MISCONDUCT**

The PSU Code of Student Conduct defines this as: “actual or attempted, fraud, deceit, or unauthorized use of materials prohibited or inappropriate in the context of the academic assignment. Unless otherwise specified by the faculty member, all submissions, whether in draft or final form, must either be the Student’s own work, or must clearly acknowledge the source(s).

Academic Misconduct includes, but is not limited to: (a) cheating, (b) fraud, (c) plagiarism, such as word for word copying, using borrowed words or phrases from original text into new patterns without attribution, or paraphrasing another writer’s ideas; (d) the buying or selling of all or any portion of course assignments and research papers; (e) performing academic assignments (including tests and examinations) in another person’s stead; (f) unauthorized disclosure or receipt of academic information; (g) falsification of research data (h) unauthorized collaboration; (i) using the same paper or data for several assignments or courses without proper documentation.”

Sanctions may result from academic misconduct.