

Syllabus: MTEC 392A, Acoustics and Speaker Design

Instructor:

Andrew Garver

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Mailbox: TMC 118

Office: TMC 107 {or MUS 103}

Office Hours: By appointment

Text: There is no official textbooks for this course. Tests and quizzes will be on the material presented in class and posted on Blackboard. These books are optional:

- Master Handbook of Acoustics by F. Alton Everest and Ken Pohlmann
- Loudspeakers: For music recording and reproduction by Philip Newell and Keith Holland
- Acoustic Design for the Home Studio by Gallagher Mitch
- Recording Studio Design by Philip Newell

Other resources: <http://www.soundonsound.com/>
<http://mixonline.com/>
<http://www.recordingmag.com/>

Course Description:

MTEC 392a: Acoustics and Speaker Design is an in-depth study of the principles of acoustics relating to studio construction, wall treatments, and natural reverberation control for better sounding studios and critical listening rooms. The class also focuses on speaker designs including cabinet construction, materials, passive and active crossovers, and drivers. All of this will help students better understand the requirements needed for setting up a professional audio monitoring system.

Requirements, Exams and Grading Information:

Student evaluation in 392 will consist of a variety of work. Project exercises stressing concepts will be assigned in class, and must be turned in as specified. Concise instructions for all exercises will be available at a later date.

Tests will contain mostly short answer and essay questions, along with a practical hands-on component. The midterm will cover the topics discussed prior to the test. Only the final exam will be cumulative. Tests must be taken during the scheduled times and cannot be made up at a later date.

Attendance is mandatory and will count towards your final grade, as part of class participation. Because of the importance of hands-on experience with this subject, participation in all classes is the only method of understanding the concepts of this topic. Attendance will be taken at each class, and each absence will be noted. After three absences, your grade will be lowered one-half grade for each additional absence. There is no distinction in this class between "excused" and "unexcused" absences—all will be counted. In the event of a serious situation such as illness that causes you to

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miss more than three classes in a row, you should contact Professor Garver as soon as possible.

Throughout the semester, questions about your grades should be addressed immediately. Do not wait until the semester has ended to resolve a grading issue.

Disabilities:

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776, http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html.

Academic Integrity:

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. Scampus (scampus.usc.edu), the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: <http://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/>. Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review, should there be any suspicion of academic dishonesty. The Review process can be found at: <http://www.usc.edu/student-affairs/SJACS/>.

Blackboard:

Course materials, documentation and grades will be posted on Blackboard at <https://blackboard.usc.edu/>. All e-mail correspondence regarding the class will be sent to USC accounts only, so please check yours regularly!

Grading:

1	Projects	30%
2	Midterm Exam	15%
3	Presentation	20%
4	Final Exam	25%
5	Class Participation	10%

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GRADING SCALE

100 - 94	A
93 - 90	A-
89 - 87	B+
86 - 83	B
82 - 80	B-
79 - 77	C+
76 - 73	C
72 - 70	C-
69 - 67	D+
66 - 64	D
63 - 60	D-
Below 60	F

Class Schedule:

Date	Topic
10-Jan	Introduction
17-Jan	Sound and dB
24-Jan	Sound in Free Space and Perception
31-Jan	Test Songs and Tones
7-Feb	Absorption
14-Feb	Reflection, Diffraction, and Diffusion
21-Feb	Isolation
28-Feb	Rooms [Midterm Posted]
7-Mar	Headphones [Midterm Due]
14-Mar	Spring Break
21-Mar	Loudspeakers and Measurements
28-Mar	Speaker Placement and Speaker Cabinets
4-Apr	Drivers and Amps
11-Apr	Crossovers and cabling
18-Apr	Presentations
25-Apr	Presentations
9-May	Final Exam 7pm