

ME 458 Noise Control

Fall 2000

Instructor: John S. Lamancusa, 314 Leonhard Bldg,
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Office Hours to be posted

Lectures: MW 1:25 - 2:15 pm 217 Hammond

Labs: Thursdays - Time to be arranged, 22 Hammond

Text: 1) Noise Control for Engineers, by Lord, Gatley and Evenson
2) Class notes - www.me.psu.edu/lamancusa/me458/me458.htm

Grading:

Lab Reports (best 8)	40%
Tests (2)	40%
Project (group grade)	10%
Attendance, Homework	5%

Class Conduct: This is not the typical " *professor lectures at the board, I frantically take notes* " class. I encourage active participation, questions, discussion and hands-on learning. You will actually experience the art and practice of noise control through activities in the field and in the lab. Wherever possible, classroom sessions will be formulated around these laboratories and will present necessary background information. Mondays will typically begin with informal presentations by selected members of the class on the results of their laboratory experiments. By the end of the semester, everyone will have a chance to present their results.

Reading Assignments: You are expected to have completed the reading assignments *before* that material is discussed in class. Please take this seriously. This will permit me to answer your questions, reinforce the important concepts, provide supplemental information and talk about practical applications and implications. It is an insult to your intelligence for me to simply narrate and lecture straight from the book.

Laboratory assignments: There are 9 lab assignments. The data-taking portion is designed to take one lab period (~ 2 hours time) on Thursday. Everyone must keep their own individual laboratory notebook. Include enough detail on the procedures, results, conclusions, etc, so that you can understand what you did a year or two from now. Formal lab reports are to be turned in for each lab and will be graded.

Project: The last three weeks of the class will be devoted to an extended project of your own choosing to "practice your craft" as noise control engineers. This project must involve experimental measurements, theoretical analyses, and professional report writing. By the tenth week of the semester, you should have a firm idea of what you want to work on. Some possibilities include: a community noise survey (near a race track, factory, frat house, airport, etc), industrial noise control, an educational demonstration, or audio speaker design and testing.

Class Attendance: You are expected to attend class on a regular basis, since material will often be presented that augments what is in the textbook. As a professional courtesy, please notify the instructor of any expected absences.

ME 458 – Fall 2000 - Syllabus

#	Date	Topic	Reading Due	Material Due
1	8/23 W	Introduction		
2	8/25 F	Fundamentals of Acoustics	1.1-1.6	
3	8/28 M	Levels and Decibels	1.7	
4	8/30 W	Instrumentation	1.8-1.9, 5.1-5.4	
5	8/31 Th	Lab 1 Divergence and Directivity		
6	9/6 W	Lab 1 post mortem, Hearing	2.1, 2.2 Notes	
7	9/7 Th	Hearing		
8	9/11 M	Human Response to Noise	2.3-2.6	Lab 1 report
9	9/13 W	Noise Metrics, Source ID	7.1-7.6, Handout	
10	9/14 Th	Lab 2 Frequency Analysis	pp 364-367	
11	9/18 M	Sound Sources and Fields	3.1-3.5	
12	9/20 W	Room Acoustics (Modes)	4.1-4.5	
13	9/21 Th	Lab 3 Reverberation Time	6.1, pp 370-374	Lab 2 report
14	9/25 M	Room Acoustics (Absorption)	8.1-8.2	
15	9/27 W	Sound power measurements	pp 398-408	
16	9/28 Th	Lab 4 Acoustic Materials	6.2, pp 409-413	Lab 3 report
17	10/2 M	Lab 4 post mortem, review		
18	10/4 W	Test 1		
19	10/5 Th	Lab 5 Sound Power	pp 398-408	Lab 4 report
20	10/9 M	Test 1 Discussion		
21	10/11 W	Enclosures	pp 375-380	
22	10/12 Th	Lab 6 Enclosures		Lab 5 report
23	10/16 M	Noise Barriers	pp 257-258, notes	
24	10/18 W	Panel Damping, Transmission	6.5, 8.4-8.5	
25	10/19 Th	Lab 7 Layered Damping		Lab 6 report
26	10/23 M	Outdoor Sound Propagation	Handout	
27	10/25 W	Outdoor Sound Propagation		
28	10/26 Th	Lab 8 Barriers		Lab 7 report
29	10/30 M	Ducts and Mufflers	8.3	
30	11/1 W	Ducts and Mufflers		
31	11/2 Th	Lab 9 Helmholtz Resonator	Handout, 8.3	Lab 8 report
32	11/6 M	Vibration Control		Draft Project Proposal
33	11/8 W	Vibration Control	Notes	
34	11/9 Th	Vibration Control Demos	8.6	Lab 9 report
35	11/13 M	Aerodynamic Noise Sources	Notes	
36	11/15 W	Test 2		Final Project Proposal
37	11/16 Th	<i>Project</i>		
38	11/20 M	Test 2 Discussion		
39	11/22 W	<i>Project</i>		
40	11/27 M	Noise control strategies	9.1-9.6	
41	11/29 W	Architectural acoustics	Notes	
42	11/30 Th	<i>Project</i>		
43	12/4 M	Special Topics		
44	12/6 W	Special Topics		
45	12/7 Th	Project Presentations		Project Report