

**INSTRUCTOR:**

Dr. Lily Wang  
101A PKI Building, 554-2065, [LWang4@UNL.edu](mailto:LWang4@UNL.edu)  
Office hours: Thursdays 3-5 PM and by appointment

**LECTURES:**

TR 1:30 – 2:45 PM, 256 PKI Building  
Additional labs will be scheduled.

**PREREQUISITES:**

AE 3300, Building Acoustic Fundamentals (or equivalent)

**TEXTBOOK:**

*Room Acoustics* – Heinrich Kuttruff (4<sup>th</sup> Edition, Elsevier Applied Science, NY, 2000)  
(Also see Additional References List on webpage)

**COURSE WEBPAGE:**

Login from <http://myuno.unomaha.edu/> using your Lotus Notes username and password.

**COURSE OBJECTIVES:**

After completion of this course, you should have the following skills:

- Understand the behavior of sound in rooms.
- Make objective measurements of room qualities.
- Design spaces with specific acoustical needs.
- Apply physical and computational models during the design process, recognizing both their utility and limitations.

**TENTATIVE LECTURE TOPICS:**

1. Room acoustics fundamentals
  - a. Wave/modal behavior
  - b. Geometric room acoustics
  - c. Reflection and scattering
  - d. Absorption
  - e. Reverberation
2. Subjective qualities and objective measures
3. Measurement techniques
  - a. Impulse response
  - b. Other objective measures (IACC, LF)
4. Modeling of room acoustics
  - a. Physical models
  - b. Computational models
5. Design of spaces
  - a. Rooms for speech
  - b. Rooms for music
  - c. Multi-purpose rooms
  - d. Open office plans

# Advanced Architectural Acoustics – Syllabus

## GRADING POLICIES:

The final grade for the class will be based on the following:

Homework	25%
Projects (two, each 7.5%)	15%
Listening Journal	5%
Quizzes	10%
Midterm Exam	20%
Final Exam	25%
Total	100%

- Final letter grades are assigned based on the system shown below:

98-100	A+
94-97	A
91-93	A-
88-90	B+
84-87	B
81-83	B-
78-80	C+
74-77	C
71-73	C-
68-70	D+
64-67	D
61-63	D-
0-60	F

### *HOMEWORK*

- Homework assignments will be handed out in class, as well as posted on the web page.
- Homework must be turned in at the beginning of class on the due date.
- Late homework received before the end of class on the due date is penalized 10%.
- Late homework received after the end of class on the due date and by the beginning of the next scheduled class is penalized 20%. After that, late homework will not be accepted, and the student will receive 0 on that assignment.
- Solutions to the homework will be provided on the web page.

### *PROJECTS*

- Project reports must be turned in at the beginning of class on the due date. **No late reports will be accepted.**
- Details on the project format will be provided at a later date.

## **POLICY ON ACADEMIC DISHONESTY:**

Academic dishonesty, such as in the form of cheating or plagiarism, will be dealt with according to the rules and regulations set forth in the UNL Student Handbook. Please feel free to study and discuss class concepts with your other classmates, but **do not claim someone else's work as your own**. Any incident of academic dishonesty associated with this course will result in the student receiving an automatic grade of 'F' for the course.

**Course Calendar**

Week	Date	General Topic	Corresponding Text	HW	Projects	Exams
I	8/26	Review and background	Ch. 1	#1 assigned		
	8/28					
II	9/2			#1 due, #2 assigned		
	9/4	Wave/modal behavior	Ch. 3			
III	9/9					Quiz
	9/11			#2 due, #3 assigned		
IV	9/16					
	9/18	Geometrical acoustics	Ch. 2, Ch. 4			
V	9/23			#3 due		
	9/25			#4 assigned		Quiz
VI	9/30					
	10/2	Reverberation	Ch. 5			
VII	10/7			#4 due, #5 assigned		
	10/9					
VIII	10/14	Subjective qualities and objective measures	Ch. 7			Quiz
	10/16			#5 due		
IX	10/21	<i>Fall Break</i>				
	10/23	<i>Review</i>				
X	10/28	<b>Midterm Exam</b>				Midterm
	10/30			#6 assigned		
XI	11/4	Measurement methods	Ch. 8		Proj. I assigned	

## Advanced Architectural Acoustics – Course Calendar

	11/6					
	11/7	<i>Make-up class?</i>				
XII	11/11	<i>ASA Miami</i>				
	11/13	<i>ASA Miami</i>				
	11/14	<i>Make-up class?</i> Modeling methods	Ch. 9	#6 due, #7 assigned		Quiz
XIII	11/18					
	11/20					
XIV	11/25				Proj. I due, Proj. II assigned	
	11/27	<i>Thanksgiving Break 11/26 – 11/30</i>				
XV	12/2	Design		#7 due		Quiz
	12/4					
XVI	12/9	Dead Week		Listening Journal due		
	12/11	<i>Review</i>				
	Tues. 12/16	<b>Final Exam (1:30 – 3:30 PM)</b>				Final
	Fri. 12/19				Proj. II due at 5 PM	