

SCIENCE OF SOUND AND MUSIC

Phys-013-10

Summer 2019– Syllabus (Tentative)

Description and Structure of the Course

First Session: June 3, 2019– July 5, 2019
Monday through Friday: 1:00 - 2:30 p.m.
Twenty four classes, ninety minutes per class
Classroom: Reiss #502
Professor: Mark A. Esrick

Textbook¹

Donald E. Hall, *MUSICAL ACOUSTICS*, 3rd Edition (required)

GRADING

	Percent of Final Grade
<i>Homework</i>	30%
<i>Three 15-minute in class quizzes</i>	12%
<i>Midterm (Take home test)</i>	24%
<i>Interest & participation in class</i>	10%
<i>Final Examination (Two hours, in class)</i>	24%

Course Outline

We will cover the following topics, (time permitting).

1. Description, propagation and measurement of sound.
2. Waves and vibrations
3. Human ear and its response
4. Elemental ingredients of music
5. Science of musical instruments

Tentative Timetable

Period/ Date	Topic	Chapters
1 – M, 6/03	Nature of Sound	1
2 – T, 6/04	Waves & Vibrations	2
3 – W, 6/05	Waves & Vibrations (continued)	2
4 – R, 6/06	Sources of Sound	3
5 – F, 6/07	Sound Propagation	4
6 – M, 6/10	Sound Propagation	4
7 – T, 6/11	Intensity	5
8 – W, 6/12	The Human Ear and Its Response	6
9 – R, 06/13	Elemental Ingredients of Music	7
10 – F, 6/14	Elemental Ingredients of Music (continued)	7
11 – M, 6/17	Sound Spectra	8
12 – T, 6/18	Percussion Instruments & Natural Modes	9
13 – W, 6/19	Percussion Instruments & Natural Modes	9
14 – R, 6/22	Piano and Guitar Strings	10
15 – M, 6/24	The Bowed String	11
16 – T, 6/25	Blown Pipes and Flutes	12

Period/ Date	Topic	Chapters
17 – W, 6/26	The Human Voice	14
18 – R, 6/27	Harmonic Intervals and Tuning	18
19 – F, 6/28	Harmonic Intervals and Tuning (continued)	18
20 – M, 7/01	Structure in Music	19
21 – T, 7/02	Structure in Music (continued)	19
22 – W, 7/03	To be determined	
23 – F, 7/04	Review	
24 – M, 7/05	Final Exam	25

¹ The textbooks will be available in the GU bookstore, but they may be available at a lower price on the Internet.