PHY 118
Musical Acoustics

Course Description

This is a survey course designed to introduce students to the scientific approach to musical acoustics.

Course Corequisite

Musical Acoustics Laboratory (PHY 118L)

Specific Course Requirements

Textbook Requirements

See current semester textbook list at http://www.physics.sfasu.edu/docs/books.pdf

Course Objectives

- To examine the ways in which music as an art form intertwines itself with our understanding of vibrating objects
- To survey in a qualitative manner the concepts of auditory perception
- To discover how vibratory physics instructs the craft of the instrument maker

Student Learning Outcomes

- To understand and apply method and appropriate technology to the study of physical science
- To recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry, and to communicate findings, analyses, and interpretation both orally and in writing
- To identify and recognize the differences among competing scientific theories
- To demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies
- To demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture

Course Content

- Impulsive Sounds
- Simple Relations of Sounds and Motions
- Characteristic Frequencies of Vibrating Objects
- Pitch
- Room Acoustics
- Loudness of Single and Combined Sounds
- Musical Scales
- Keyboard Temperaments and Tuning

Course Assessment

There will be four major exams, each covering a limited amount of lecture and text material. No make-up exams will be given except by EXCUSED absence. Each major exam is graded on a 100-point scale. No grade curving is done on any grade in this course. The lecture and lab grades will be combined and the **same grade** will be recorded for both lecture and lab.

The lab exam will be given in lab after the last lab has been completed. See the lab syllabus for details.

A term paper is usually assigned over the acoustics of a particular instrument.