Syllabus

PHY 105 - Physics of Sound

General Information

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Department Science and Technology

Course Prefix PHY

Course Number 105

Course Title Physics of Sound

Course Information

Catalog Description An introductory course in physics for students who have not had high school physics, designed for non-science majors. This is a required course for music majors as well as Music Recording Technology majors. Emphasizes: Scientific method, measurement, laboratory proficiency. Topics include vibrations, transverse and longitudinal waves, sound waves, superposition of waves, standing waves, harmonic analysis, mathematical elements of the Pythagorean and modern scales, the production of musical sounds, hearing, sound measurement, fundamentals of microphones and speakers, elements of acoustic architecture. This fulfills the laboratory science requirements for non-science degrees.

Credit Hours 4

Lecture Contact Hours 3

Lab Contact Hours 2

Other Contact Hours 0

Grading Scheme Letter

Prerequisites

None

Co-requisites

None

First Year Experience/Capstone Designation

This course DOES NOT satisfy the outcomes applicable for status as a FYE or Capstone.

SUNY General Education

This course is designated as satisfying a requirement in the following SUNY Gen Ed category
Natural Sciences (and Scientific Reasoning)

FLCC Values

Institutional Learning Outcomes Addressed by the Course
Inquiry, Perseverance, and Interconnectedness

Course Learning Outcomes

Course Learning Outcomes

1. Apply arithmetic, algebra, and geometric principles to the analysis of the physical properties of sound.
2. Identify, analyze, and evaluate sound wave experiments; and develop well-reasoned arguments and conclusions from the analysis of the data.
3. Articulate how waves are produced, measured, and combined to create music.
4. Connect the description of musical quality to the science of wave forms.

Outline of Topics Covered

Units, Conversions, and Dimensional Analysis
Precision, Accuracy, and Uncertainty Analysis
Graphing
Vibrations and Waves
Sound
Wave Superposition and Interference
Standing Waves
Harmonics and Wave Combinations
Wave Synthesis and Analysis

Sound Measurements
Intensity, Decibels
Human Auditory System
Hearing Safety
Electronic Sound
Speakers and Microphones
Acoustics and Architecture