

**Topic List for Exam #2  
(not exhaustive)**

**Physics 105 – Acoustics**

**Friday, June 22, 2007**

oscillators

mass on a spring system, sinusoidal functions, radians  
 $x$  vs  $t$ ,  $v$  vs  $t$ ,  $a$  vs  $t$ ,  $F$  vs  $t$   
period, frequency, amplitude

oscillation modes

degrees of freedom, numbers of oscillators  
transverse and longitudinal modes

waves

equilibrium of the medium that supports the waves, hard and soft reflections  
left and right traveling waves, each bit as a simple harmonic oscillator  
principle of superposition  
interference – constructive and destructive, phase  
interference b/w same frequencies leads to a new traveling wave  
interference b/w different frequencies leads to beats

resonance

driving force, resonance curve,  $Q$  factor, phase b/w oscillator and driver  
standing waves – restricted medium, left & right traveling waves interfere, nodes & antinodes  
zero, one, two ends “fixed”

sound waves

relationship b/w pressure and displacement, nodes & antinodes

lab content – concepts explored in the laboratory exercises may also be included on the exam

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