# Topics for today:

* Wave interference
  + When waves arrive from different sources (or from a reflection), the wave pressures may be in phase or out of phase: the pressures may add or subtract from each other.
  + Interference can cause the sound to be louder or softer at different places in a room.
  + Interference can affect an audio recording depending upon the microphone location.
* Sound level and the decibel
  + Common sound pressures vary from tens of micropascals (very quiet) up to a few pascals (very loud).
  + It can be inconvenient to deal with this wide range of numbers (0.00002 to 2).
  + Customarily, acousticians convert to decibels (dB), so that the wide numerical range of pressure gets converted into a range from zero to 100.
  + The decibel for pressure is defined: dB = 10 log10((pressure)2/(20 micropascals)2) .
  + This can be adjusted mathematically to be dB = 20 log10((pressure)/(20 micropascals)) .
  + 20 micropascals is the “threshold of hearing” at frequencies for which the ear is most sensitive (2-3 kHz). This is zero dB sound pressure level (SPL).
  + 2 pascals is very loud, almost painful, and corresponds to 100 dB SPL.

# Topics for the next lecture:

* Reading assignment: Chapters 9, 10, and 12.
* Start anatomy and physiology of the ear.