

# Physics 8.03

# Vibrations and Waves

Lecture 5  
Coupled Oscillators

# Coupled oscillators

- What happens when we put two pendulums beside each other?
  - Nothing special. We get two pendulums.
- What happens when we couple them with a spring?
  - Their motion depends on the initial conditions (i.c.)
    - So what, we've seen that before. The amplitude and phase of the motion depends on the i.c.
    - Aha, but now the **frequency** of oscillation depends on i.c.
    - In fact, in general the motion isn't even harmonic
- Except when i.c. correspond to **normal modes of oscillation**