PH1140
Oscillations and Waves

Term D 2009

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Oscillations and Waves

Oscs & Wavs OSWAs

- *I signed up for a course on oswas?*
- *First, let me ask you a couple of questions…*
- *What's an oscillator? What is oscillation?*
  - *A mass that goes to and fro.*
  - *Periodic motion of a mass.*
- *What's a wave?*
  - *A shape that moves thru a continuous medium.*

Today we will do three things…

1. *take a field trip ☺*
   - *I lied! How about videos and demos instead?*
2. *talk about organization & logistics, plugh ☹*
   - *when to do what, and how to go about doing it*
3. *babble on about circular motion (huh?)*
   - *what does circmo have to do with oswas?*

What do you want to do first?

Oscillations

you can have oscillations of:

- *masses on springs*
- *tuning forks*
- *guitar strings*
- *vocal cords*
- *bobbing boats*
- *pendulums, …the list is sort of long…*

- twins on playground swings, *wee!*

Oscillations

- *What kinds of oscillations are there?*
  - *free*
  - *damped*
  - *forced*
  - *superimposed*
  - *coupled*
  - *linear and non-linear*
  - *mechanical and electrical*

Waves

you can have waves:

- *on ropes and slinkys*
- *on membranes and surfaces*
- *in matter (sound)*
- *in empty space (light)*

- *A pebble tossed in a pond makes waves*

Interactions

"how the world works"

you can have interactions between:

- *oscillators and oscillators*
- *oscillators and waves*
- *waves and waves*

- *this makes that, or that makes this*
- *resonance works the magic!*

how do we describe an oswa interaction? hmm…

Organization & Logistics (plugh)

Go to

www.wpi.edu\+physics and click on
→ Student Resources
→ Physics Course Online
→ PH1140 D09

and cruise !

--- book mark this puppy.

Labs Rule !

- *hands-on learning is a big deal*
- *labs are worth 20% of your grade, hello*
- *"not familiar with Logger Pro and Vernier"?*
  - *team with someone who is*
- *read the General Lab Procedure*
- *read lab procedures ahead of time (why?)*
  - *because… bring your equations to lab*
- *Submit worksheet in lab and you're done.*

Go to myWPI for…

- *grades*
- *announcements*
- *link to course webpage*

Ah, myWPI, my home away from home!

Read these or else… !

- Syllabus !
- Schedule !
- General Lab Procedure !
- Lab Procedures !
- Study Guides !

See schedule for due dateS

SGs are one-stop-shop for exam preP

★ FIND EVERYTHING AT THE COURSE WEBPAGE ★

Exams will cover…

homework & labs

DO THESE,

REVIEW THESE,

AND YOU ARE GOOD TO GO !

3 exams · 3 study guides · you do the math

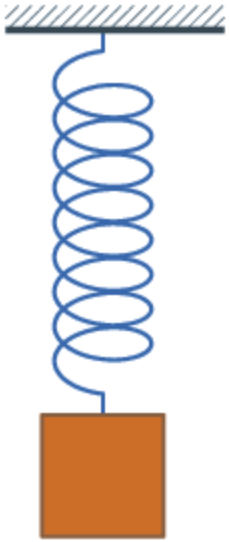
Any questions?

I have a question for you…

What
does circular motion
have to do with
anything
in this course?
huh?

circmo is the key…

that reveals the nature of



simple harmonic motion