Oberlin College Physics 110, Fall 2011

Assignment 6

Wednesday, 12 October

Reading: For some necessary mathematical background, read HRW pages 47 to 49 on the scalar dot product (stop at the end of the sample problem on page 49). But devote most of your effort to the reading of HRW chapter 7 (Kinetic Energy and Work). Emphasize sections 7-3 and 7-5. We've seen that force is a central concept, but we've also seen that exerting equal forces doesn't generate equal tiredness, nor does experiencing equal forces result in equal damage. In general, two equal forces might not "get the same amount done". Obviously we need some sort of measure of the effectiveness of a force. This need is met by the concept of *work*.

Workshops: No Wednesday–Thursday lab this week!

Visiting Speaker: Professor Harsh Mathur, of Case Western Reserve University, will speak on "Fractal Analysis and Drip Paintings". The talk will be at Wright 201 (our lecture hall) on Thursday 13 October at 4:35 pm, and the standard extra-credit rule applies.

Informal Friday: Our own Professor Aaron Santos will speak concerning "On Drunks and Nanobots: How We Use Modeling to Understand the Physical World". This optional meeting will be held this Friday at the usual time (9:00 am) but **at an unusual place (Kettering 100)**. The usual extra-credit rule applies here, as well.

Problems: Due Wednesday, 19 October.

- HRW problem 15-4: *Car on a spring*

- HRW problem 15-18: *Tides*

- Additional problem 63: *Pendulum motion*

- Additional problem 68: *A block and two springs*

- HRW problem 9-13: *The bullet that broke apart*

- Additional problem 85: *It happened on a moonlit night...*

- Additional problem 87: *A girl, a sled, and an ice-covered lake, part II*