Physics 301-001: Assignments for February 13-20th

Homework #4: Calculus of Variations I

Due Thursday, February 20th, at 4**:00 pm**

Reading Assignment:

During this week, you should be reading the following (in order):

1) Boas, ch.9

Homework Assignment:

This assignment must be turned in by **4:00 pm** on **Thursday, February 20th**. Late homework will ***not*** be accepted. Please write your answers to these questions on a separate sheet of paper with **your name and this class's section number, 001.** Turn in your homework to me in class or in my mail box in the physics department by 4:00 pm. You are encouraged to work with your classmates on these assignments, but please **write the names of all your study group members** on your homework.

Practice Problems:

We have listed problems from the textbook that involve related skills and concepts; answers to these problems may be found in the back of the text. You should use these extra problems for practice and review, but they do *not* need to be turned in.

Selected Practice Problems from Boas: 9.2.1, 9.2.3, 9.2.7, 9.3.3, 9.3.11, 9.3.17, 9.4.3, 9.4.5

1. In book problems (24 pts)

9.1.1	9.2.4	9.2.8	9.3.4	9.3.12
9.3.18	9.4.4	9.4.6		

2. Matlab (3 pts): Make a plot of the following function (hint, look up the command fplot)

$$f(x) = x^2 \exp(-x^2)$$

2. Matlab (8 pts): Solve the following differential equation in Matlab

$$f'' + f' + 2 = 0 \quad f_0 = 1 \;\; f_0' = 3$$