Physics 606
<< Classical Mechanics>>

Fall 2021

Instructor: Dr. Y. H. Shih   Office: PHYS 310, 009 (Lab)
                                                                           Telephone: 52558 (o), 51933 (Lab.)

Lectures: M W 10:00 - 11:15 am,   Room: Sherman Hall 007

Text: Marion and Thornton <<Classical Dynamics>>

References: H. Goldstein <<Classical Mechanics>>
                      Landau & Lifshitz   <<Mechanics>>

Prerequisites: Student should have had a standard undergraduate course in intermediate
            mechanics and a standard undergraduate course in mathematical physics or
            engineering mathematics. In particular, it will be assumed that the students
            understand the basic theory of ordinary differential equation and basic material
            about vector spaces and matrices.

Homework: Homework due day will be noticed with the assignment. You are
            encouraged to discuss the problems together; however, each person should work
            out their assignment *independently*. Assignments are to be written up
            professionally with computer graphics where appropriate. The computer
            worksheets should be readable by anyone. This requires explanations of what you
            are doing.

Grading Method: Homework 20%, Midterm 30%, Final 50%.

Office Hours: W 12:30-3:30pm. You are welcome to see me anytime. Please call to
make sure where I am (office or lab). We can also setup a Webex meeting if necessary.

Topic Outline:

       I   Newtonian mechanics and simple mechanical systems
       II   Lagrangian and Hamiltonian dynamics
       III   Central-force motion
       IV   Motion in a non-initial reference frame
       V   Dynamics of a system of particles
       VI   Dynamics of rigid bodies
       VII Linear oscillation and coupled linear oscillations
       VIII Mechanical waves and wave equation
       IX   Hamilton dynamics, canonical transformation, Poisson brackets and
             phase space.

COVID-19:

   Please see this Google doc for UMBC Policies and Resources during COVID-19.