PHY 4222 Mechanics 2 – Spring 2013

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Meeting time: MWF period 6 (12:50 pm – 1:40 pm) NPB 1002

Office hours: MWF period 7 (1:50 pm – 2:45 pm), T period 6 (12:50 pm – 1:40 pm), or by appointment

Textbook: *Classical Mechanics* by John R. Taylor

Prerequisites: PHY 3221, PHZ 3113, or equivalent

This is the second part of the PHY 3221 - PHY 4222 sequence. Physics majors in the enriched option, who have taken PHZ 3113, are recommended to take this course without taking PHY 3221. The course covers Lagrange's equations, two-body central-force problems with an emphasis on Kepler orbits of planets and moons, noninertial frames with an emphasis on rotating frames, rotational motion of rigid bodies, coupled oscillators, chaos, and Hamiltonian mechanics. These subjects correspond to Chapters 7 through 13 of the textbook.

GRADING POLICY

Homework: There will be eight homework assignments during the semester, each comprising up to ten problems. Most of the problems will come from the textbook. Each assignment will be posted at the course website one week before the due date (see the schedule webpage), on which the homework must be turned in at the beginning of the class. **Overdue homework will not be accepted.** Six highest scores of the homeworks will be worth 20% of the total grade.

In-class exams: There will be three in-class exams on the dates indicated on the schedule webpage. The problems will mostly come from homework assignments. All exams will be closed book, with no calculators. No formula sheet will be allowed. Formulae that are difficult to reconstruct with dimensional analysis alone will be given on each exam and will be posted one week in advance. The exams will be worth 50% of the total grade. No exam score will be dropped.

There will be no makeup for missed in-class exams.

Final exam: This will be a two-hour exam, 40% of it covering Section 11.7-Chapter 13 of the textbook, and 60% will be cumulative. The problems for the first, non-cumulative part, will mostly come from homework assignments. The final exam will also be closed book with no calculators, no formula sheet. Formulae that are difficult to reconstruct with dimensional analysis alone will be given on the exam and will be posted one week in advance. The final exam will be worth 30% of the total grade.

Makeup of the final exam will be allowed only under extreme circumstances and will require a letter from a medical doctor or an attorney.

HOW TO SUCCEED IN THIS CLASS

Make sure to read the textbook in advance, since the lectures will assume that you have read relevant sections.

Since you are majoring in physics or a related area, I am sure you are keenly aware that problem solving is essential for studying physics. At the least, you should do all the homework problems. It is important that you first work on the problems on your own. If you are stuck, however, it will be useful to discuss with other students or the instructor to resolve conceptual difficulties and math deficiencies. It is a bad idea to look up a solution on the internet. By doing so, you will be doing a disservice to yourself.

STUDENTS WITH DISABILITIES: Students who require accommodation for disabilities must first contact the Dean of Students Office. That office will provide documentation, which the student must bring to the instructor during the first week of the semester.

ACADEMIC HONESTY: Each student is expected to hold himself/herself to a high standard of academic honesty. Under the UF academic honesty policy, unauthorized assistance or the use of unauthorized resources is strictly forbidden on work-for-credit. Although discussions among the students are highly encouraged, you are to work alone on all homework assignments unless specified differently. Fabrication or falsification of excuses or related documentation is also a violation of the UF academic honesty policy. Violations of this policy will be dealt with severely. There will be no warnings or exceptions.