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PHYS 371.01: Classical Mechanics I

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Instructor: James Jacobs
 Office: Science Complex. Office: SC 119, Lab: SC 021.
 Phone: 243-4986, 243-4950
 Text: *Classical Dynamics of Particles and Systems* by Marion and Thornton.
 We will cover chapters 1,2,3,5,6,7, and 8 if time permits.
 Lectures: Tu,Th 9:40-11:00 AM. SC Room 231.
 Office Hours: Right after class (short questions). And by Appointment.
 Regular Office Hours to be announced in class.

Homework:

Problem sets will be given weekly. The assigned problems will be collected, graded and returned. Homework will be due at 5:00pm on the dates specified when assigned. Late assignments will be accepted only under extreme circumstances (arranged in advance) and will carry a 10% penalty for each day beyond the due date (no credit will be given after the solutions have been posted). Note that the exams will be similar to the homework in many respects, so working the assigned problems carefully will provide invaluable practice for the exams. Solutions might be posted on the www. You are encouraged to work together on the homework problems and see me if you need hints. In general these problems will be difficult; please don't wait until the last minute to attempt them.

Exams:

There will be 2 in-class mid-term exams given during the semester. The comprehensive final exam is scheduled for Wednesday December 19th from 10:10am to 12:10pm, but I reserve the right to give a take home final. Since each new topic will build on previous concepts, a general working knowledge of previous material will be expected on all exams. The exams will be closed book except for a calculator (in some cases, a 3 by 5 card for formulas *may* be allowed). There will be no make-up exams. In some cases, the exams may consist of an in-class portion and a take-home portion.

General Remarks

I will assume a working knowledge of vector calculus although chapter 1 will serve as a review for most of this material. I will assume that you will be learning skills to solve differential equations as the course progresses. In mechanics at this level, the most efficient way to master the material is to work many problems so I will concentrate on problem solving in class, and assign many problems from the book.

Grading

Midterm exams: 30% (2@15% each)
 Homework: 45%
 Final exam: 25%

Tentative Schedule – Topics

Week:	Chapters	Topics	Exams:
Weeks 1-4	Ch 1-2	Introduction and single particle Newtonian mechanics	
Weeks 4-6	Ch 3	Oscillations	
			Exam 1, Thurs. Oct. 11th
Weeks 6-8	Ch 5	Gravitation	
Weeks 8-10	Ch 6	Calculus of variations	
			Exam 2, Tues. Nov. 20th
Weeks 10-13	Ch 7	Hamiltonian and Lagrangian Dynamics	
Weeks 13-15	Ch 8	Central Force Motion	

Comprehensive Final: Wednesday, December 19th from 10:10am to 12:10pm
 Last day to drop: October 15th.