

**Phyx 411-0 CLASSICAL MECHANICS**

**Winter 2010**

**Syllabus**

**Instructor**

Ian Low (Office Tech F332)

**Course Webpage**

[http://www.hep.anl.gov/ian/teaching/CM/CM\\_Winter10.html](http://www.hep.anl.gov/ian/teaching/CM/CM_Winter10.html)

**Location and Hours**

Class: Monday and Friday 2:00 - 3:20pm, Tech M349

Office Hours: Monday 11:00am - 12:00pm or by appointments

**Course Description**

Selected topics from: review of Newtonian mechanics, conservation laws and rigid-body dynamics. Variational principle. Lagrangian mechanics, constraints, symmetry and conservation laws, non-potential forces, scattering, linear oscillations. Hamiltonian formulation, canonical transformations, Poisson brackets, perturbation theory. Continuum dynamics.

**Required Textbook**

*Classical Mechanics*, 3rd Edition, by H. Goldstein, C. Poole, and J. Safko, Addison Wesley 2002.

**Optional Textbooks**

- *Mechanics*, 3rd Edition, by L. D. Landau and E. M. Lifshitz, Pergamon Press 1976.
- *Classical Mechanics: A Modern Perspective*, 2nd Edition, by V. D. Barger and M. G. Olsson, McGraw-Hill 1995.

**Exams**

- In-class mid-term exam: 2:00 - 3:20pm on Friday, February 5th.
- Final exam: 9:00 - 11:00am on Tuesday, March 16th.

## Homework

- Assignments will be posted on the course webpage roughly every week. It is due at 2pm one week from the posted date unless otherwise noted. **NO LATE HOMEWORK WILL BE ACCEPTED.**
- You are required to work on all the assigned problems. However, only a selective number of problems will be graded.
- You are encouraged to discuss with one another about homework assignments. However, after the discussions (which I hope there are plenty!), you must solve the problem yourself, write your own solutions, and demonstrate proper understanding of what you write.

## Grading

Grades for the assignments and the exams will be posted on the Blackboard. Final grade will be determined by the following formula:

Homework: 35%

Mid-term exam: 30 %

Final exam: 35 %