PHYS 2210 Syllabus – Spring 2016

Venue: Duane Physics G130
Time: MWF, 10-10:50 AM
Instructor: John Bohn
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Web: http://www.colorado.edu/physics/phys2210/phys2210_sp16/

Introduction

This course covers the basic elements of classical mechanics at a deeper level than in your introductory courses. Moreover, we will use this material as an excuse to develop more sophisticated mathematical tools, which will continue to serve you throughout your physics career or beyond.

This class will make extensive use of clickers. Their purpose, as always, is to keep your head in the game, and the let you think about the material as we go along in lecture. You will get extra credit points for correct clicker responses.

Prerequisites

Physics prerequisites: PHYS 1110, 1120, and 2170 (or 2130), or their equivalents
Mathematical prerequisites: Calculus III (MATH 2400 or APPM 2350)
Mathematica co-requisites: differential equations (MATH 4430 or APPM 2360).

Grading

Your final grade will be based on the following:
Homework – 40% (Note: your lowest homework grade will be dropped.)
Midterm -- 2 @ 15% each
Final Exam – 30%
Clickers – up to 5% of extra credit

Problem sets

You learn the principles and applications of classical mechanics the same way you get to Carnegie Hall – practice, practice, practice! Each week there will be a set of problems for you to work out and hand in. These will be due Friday in class.

In addition to pencil-and-paper problems, some of the homework will require numerical solution, using Mathematica. Please install Mathematica on your own computer, or find a computer where you can access Mathematica, as soon as possible. CU students can download it for free at http://sitelic.colorado.edu/mathematica/
It is of course acceptable (and probably desirable) to work with others on solving these problems. However, the final writeup must be your own. On the Mathematica assignments, it will be allowed to turn in collaborative Mathematica notebooks, rather than tying it in from scratch after developing it jointly. However, as in any collaborative project, the names of all collaborators must be listed on each individual copy turned in.

Communication is an essential skill for a scientist. To begin fostering written communication skills, you are expected to explain your solutions in complete sentences. Even if your solution is perfectly mathematically sound, you will not get full credit for it unless you explain how you arrived at the solution in your own words. It goes without saying that copying answers from another student, or from online solutions that you can find, or from anywhere, is a violation of the CU Honor Code, and will be treated in accordance with the policies of this code.

Homework sets will be assigned weekly, and due in class on Friday. Late homework will not be accepted. If for some reason you cannot hand in a given assignment, know that your lowest homework score will be dropped. Solutions will be posted on D2L.

Help Sessions

Prof. Bohn will be available in the Physics Help Room (Duane basement) from 1-2 on Thursday afternoons, the day before homework is due. The four TAs will also be available at certain times. Check the Help Room schedule for details.

Exams

Midterms

There will be two evening midterm exams, times, dates given below. These exams will be in BESC 180, not the regular classroom). There will be no make-up exams. You can only be excused form an exam for a very good reason, usually a documented medical excuse.

Midterm #1: Thursday, Feb. 11, 7:30-9:30 PM

Midterm #2: Thursday, Mar. 31, 7:30-9:30 PM

Final Tuesday, May 3, 1:30 – 4 PM, location TBD

Lectures

Lectures will be held on Monday, Wednesday, and Friday, from 10-10:50 AM, in Duane G130. Each week there will be a reading assignment from the text that you are expected to read before class. The lectures will not simply repeat what is in the reading. Rather, we will address the consequences and applications of the material, often by working problems together in class.
Textbook

The official course textbooks are *Classical Mechanics*, by John R. Taylor.

A very useful supplemental text for the math you will need is *Mathematical Methods in the Physical Sciences*, third edition, by Mary L. Boas. This text is not required for the course, however.

Another great text, also not required, is *An Introduction to Mechanics*, by Daniel Kleppner and Robert J. Kolenkow.

Honor Code

All students of the University of Colorado at Boulder are responsible for knowing and adhering to the academic integrity policy of this institution. Violations of this policy may include: cheating, plagiarism, aid of academic dishonesty, fabrication, lying, bribery, and threatening behavior. All incidents of academic misconduct shall be reported to the Honor Code Council (honor@colorado.edu; 303-735-2273). Students who are found to be in violation of the academic integrity policy will be subject to both academic sanctions from the faculty member and non-academic sanctions (including but not limited to university probation, suspension, or expulsion). Other information on the Honor Code can be found at [http://www.colorado.edu/policies/honor.html](http://www.colorado.edu/policies/honor.html).

Disabilities

If you qualify for accommodations because of a disability, please submit to your professor a letter from Disability Services in a timely manner (for exam accommodations provide your letter at least one week prior to the exam) so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities. Contact Disability Services at 303-492-8671 or by e-mail at dsinfo@colorado.edu. If you have a temporary medical condition or injury, see Temporary Medical Conditions: Injuries, Surgeries, and Illnesses guidelines under Quick Links at Disability Services website and discuss your needs with your professor.

Religious Observances

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. Please contact Professor Bohn if you find yourself in such a conflict. See full details at [http://www.colorado.edu/policies/fac_relig.html](http://www.colorado.edu/policies/fac_relig.html).

Classroom Behavior

Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to
discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, color, culture, religion, creed, politics, veteran's status, sexual orientation, gender, gender identity and gender expression, age, disability, and nationalities. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. See policies at http://www.colorado.edu/policies/classbehavior.html and at http://www.colorado.edu/studentaffairs/judicialaffairs/code.html#student_code

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