

**Portland State University**  
**Department of Physics**  
**PH 201 : General Physics - Mechanics**  
**Summer, 2005 (06/20/05 - 07/13/05)**

**(I) General Information**

Instructor : Peter Leung

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Office hours : M - F: 10:45 - 11:45 a.m., and by appointment

Course grade : Three non-cumulative exams. will count 25%, 35%, and 40%, respectively.  
The one with the lowest grade will be counted the least. Overall course grade will be determined from a curve for the class. Make-up exams. are only available to students with medical or emergency reasons (with proof).

Text : J. S. Walker: Physics (second edition). Note that because of time limitation, most of the **worked examples** in the text will **not** be discussed in class. Students should study them seriously, and get private help from the instructor in case when difficulty arises.

Homework problems : Assigned questions and problems from the text are suggested to the students (see back page). Solutions to ALL the problems will be available through the webct. Students should practice as many problems as possible, and get help from the instructor whenever necessary. We shall try to have a tutorial session to go over some of these problems before each exam.

Reward for homework effort : Although the homework problems will not be collected and do not amount to any contribution to the course grade, some of them (at least one) will appear in each of the exams. Furthermore, students should keep a good (tidy and original) record of their homework and can hand in (optional) at the end of the term to show their effort. Such effort will be considered in borderline cases (e.g. A-/B+; C-/D;...). Students who have completed all the 3 exams. with an average of at least 35%, and have an excellent homework record, will not fail the course (failing means a grade below C-).

Course outline : This course deals with *Newtonian Mechanics* : the study of classical motion of objects which includes both kinematics (description) and dynamics (“explanation”) of moving objects. The following three parts will be included :

Part 1 : *Simple one and two dimensional motions* : concepts in kinematics (space, time, velocity, acceleration,...) and dynamics (inertia, force,...); Newton’s laws and different kinds of fundamental (e.g. gravitation) and empirical (e.g. friction) forces; the special case of static equilibrium. (Chapters 1-5, Sec. 6.1-6.4)

Part 2 : *More complicated dynamics* : circular motion; concepts of work, energy, impulse, and linear momentum; conservation laws. (Sec. 6.5, Chapters 7, 8, 9)

Part 3 : *Rotational motion and gravity* : concepts of angular momentum; moment of inertia, and torque; rotational kinematics and dynamics; conservation laws; Newton’s law of universal gravitation; Kepler’s laws of orbital motion. (Chapters 10, 11, 12)

***Note: the lecture will NOT be exactly in the same order as in the textbook.  
Details of reference to a particular section of the text are given in the  
lecture notes which are posted electronically (see below).***

## (II) Schedule and Assignments

<u>Lecture weeks</u>	<u>Chapter</u>	<u>Homework</u>
<b><u>Part 1</u></b>		
06/20/05	1	Q4; P9, 15, 30, 39
	3	Q6, 9, 13; P7, 19, 29
to	2	Q2, 5, 15, 23; P17, 21, 32, 55, 101
	3	P39
06/24/05	4	Q4, 7, 13; P 13, 21, 37, 69, 73
	3	P47
	5	Q22, 29, 32; P7, 17, 25, 35, 42
	6	Q6; P7, 21, 27, 34, 36, 71

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<b><u>Part 2</u></b>		
06/28/05	6	Q29; P46, 49, 52, 69, 88
to	7	Q4, 10; P9, 24, 33, 61, 75
07/05/05	8	Q1, 13; P5, 19, 24, 38, 73, 75, 78
	7	P47
	9	Q3, 30; P4, 13, 22, 30, 38, 63, 74

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<b><u>Part 3</u></b>		
07/07/05	10	Q8, 19, 21; P17, 29, 40, 45
	11	Q3, 7, 8, 16; P23, 30, 37, 84
	11	Q17, 18, 30; P11, 45, 53, 63, 86, 89
	10	P58, 72, 75, 80, 88
07/12/05	12	Q10, 11; P12, 19, 31, 33, 39, 51
	<i>(excluded for optional homework credit)</i>	

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**EXAM. DATES :** Exam. #1 : 06/27/05 (Part 1)

Exam. #2 : 07/06/05 (Part 2)

Exam. #3 : 07/13/05 (Part 3)

## Supplementary information about the course (PH 201)

### A. Lecture Attendance

Class attendance will be taken. This will contribute to a maximum of 3 extra points to the final grade of the student.

### B. Exams

1. Except for the last exam., each exam will contain two parts: Part A (multiple choices) and Part B (problems require showing details). There will be choice of problems and partial credits given in Part B. The last exam, i.e. Exam. #3, will contain ALL multiple choice questions.
2. All exams will be closed book. Students are allowed to bring with them a “note card” (8.5” x 5.5”, both sides) on which they can put down the important information they think that will be needed for the exam.
3. Sample exams will be posted on the web. Note that these are similar exams I have given many years ago in a course similar to this. However, since the contents covered in this previous course is not all the same as the present one, the students should only take these samples as a guide to the FORMAT of the exam that they will encounter, and not to take seriously of the content of these sample exams! Furthermore, as stated in point 1 above, the last exam will not conform to the posted format and will contain exclusively multiple choice questions.
4. In each exam, there will be some problems taken from the homework assignments.

### C. Access to WebCT

Students need to get an ODIN account to log onto WebCT. The address is:

<http://www.webct.pdx.edu>

*Materials available on the web:* syllabus, solutions to all the problems,  
sample exams, solutions to exams,  
self tests, and some class review questions

*Link to posted Lecture Notes:* also available will be the link to the PSU electronic library from which all the Lecture Notes for the course can be downloaded. Just follow the instruction to find the materials for this course, and when you are asked for a password, just enter: LEUNG