

PHYSICS 100, DA, EA, FA; lec, lab **INTR PHYSICS** Winter, 2009
 lec 18-105 TWRf 10:30-11:30; lab 18-124 : M 9 :30, M 11 :30, T 11:30
 Dr. Michael R. Rodman Spokane Falls Community College
 Office: 18-107A hrs TWRf 9:30, WF 11:30, TR 1:30
 also during any lab session, and by arrangement--- phone 533-3668
e-mail miker@spokanefalls.edu and www.spokanefalls.edu. If I'm not in my office
 always check Room 109 (lab), & Room 107 (prep area)

Course Description/outcomes: This is a 5-credit (lab included) physics course for those wanting a general introduction to the fundamental principles of physics and laws of nature. Topics covered will be motion, Newton's laws, work, energy and momentum. In addition, each term will contain a varying mixture of heat, thermodynamics, waves, optics, electricity, magnetism, nuclear, quantum and relativity. By the end of the course, students should have enhanced their problem solving skills, have a basic understanding of what the discipline of physics is, and have a better appreciation for the process of science and the role that science plays in the human endeavor.

Pre/co requisite: None, except a reasonable fluency in English

Materials (necessary): (1) text- Paul Hewitt, *Conceptual Physics*, 10th edition & the *Conceptual Physics* workbook, *Practicing Physics* ; these two books are bundled together as ISBN 0805391908 (2) a simple calculator, (3) a few sheets of graph paper, (4) access to the online Black Board which is where assignments, practice material, ~grades, and other information will be posted.

Grade: (1) Your final grade will be determined from the following quantitative components (a) exams = 38%, (b) final = 14 % (c) laboratory = 33.4%, (d) Activities consisting of in class work, on line Blackboard assignments, and the "Practicing Physics" workbook = 14.5%, (e) text homework of exercise/problems=0.1% (note that this is an extremely small portion of your grade and acts more like extra credit work). (2) At the end of the term each of your components will be totaled and compared to the total possible. Then your component comparison will be weighted by the above percentages. (3) These percentages will be totaled, multiplied by 100 and assigned a grade as follows---

GRADES:

91 - 100	4.0
89 - 90.9+	3.5
81 - 88.9+	3.3
73 - 80.9+	2.8
66 - 72.9+	2.5
59 - 65.9+	2.0
50 - 58.9+	1.7
35 - 49.9+	1.3
20 - 34.9+	0.9
0 - 19.9+	0.0

(4) For example, suppose you get 225/300 for three of four exams, 100/150 for the final; 67/80 for eight labs; 95/125 for 35 activities, i.e. from in class, Blackboard and

“Practicing Physics” assignments; and 20/30 for eleven text homework assignments. Then your final grade is $[(225/300 \times .38) + (100/150 \times .14) + (67/80 \times .334) + (95/125 \times .145) + (20/30 \times 0.001)] = .7749 \times 100 \approx 77.5$; therefore the final grade is 2.8. (5) However, I reserve the right to consider such factors as attendance, exceptional participation, extraordinary work, cheating, and other factors in determining the final grade which could be significantly different than in the distribution given in item 3 above! (6) Since this is a lab course, **a minimum of half the total labs assigned (rounded up) must be completed to pass the course**; for example if there are 7 labs, then 4 must be attended to pass.

Examinations (38% of grade): (1) Four in term worth 100 pt. and one final worth 150 pt. are given. (2) One in term test will be dropped. (3) Under special circumstances: Make-up tests may be allowed but any test made-up afterwards will be automatically penalized 10 points--. (4) However, if the test is taken before the test time, no penalty is assessed. (5) Tests will be a mixture of primarily multiple choice, and some fill in blanks, short answer (e.g. a basic calculation), and possibly 1 or 2 short essays. (6) **All tests are open book and open notes.** (7) Exams are reviewed in class after they are graded and the handed back to the instructor. **The instructor permanently retains all tests including the final.**

Final (14% of grade) (1) Final is comprehensive and multiple choice with a Scan-tron provided, however bring a #2 lead pencil for this test. (2) It is open book and open notes. The instructor retains this test. (3) Your final is Tues., March 24, 2009 from 10:30 to 12:30 in the lecture room.

Laboratory (33.4% of grade): (1) When entering the lab, sign the sign in sheet and pick up a lab handout on the side counter. (Material such as homework, activities, etc., handed back will also be in a box on the side counter). (2) Lab experiments are done as a group; 1 group for each table (station). No more than four students per lab station. (3) Each person hands in his or her own report. (4) Some reports are due at the end of the lab; others are due at the beginning of next week’s lab. (5) The instructor will specify the format during each lab. Those lab reports due at the end of a lab have no particular format. Reports due the following week are more detailed and usually involve graphing. It is possible some reports due the following week may be even more involved requiring a complete formal write-up. Any longer formal reports consist of 1 or more typed pages, followed by any graphs, calculations, data tables, etc. called for and last, the initialed raw data page. All these pages are stapled together. (6) When a formal lab report is assigned it should use the following format. Note, only use this format for a formal lab!

Your name: both typed and also your signature

date

All partners names in the group

Title of the lab

Introduction: 1 or 2 sentences stating the purpose or goal of the lab

Equipment & Procedure: A paragraph describing the equipment, how it was used, what you did to collect the data etc. You may supplement your equipment description with a sketch of the set up.

Results & Conclusion: Frequently the results will be data tables and graphs. Calculations using the data are usually involved as well. However, you should also explain your results in a paragraph. Tell about any

difficulties you encountered and possible sources of error (don't say human error, be specific). Also say whether you were satisfied with your results and why.

(7) Each report is worth 10 points; 2 points for attending the lab and collecting the data, and the other 8 points for mechanics, organization, thoroughness, objectivity, focus, and completeness. (8) No labs are dropped, but one lab may be made up at the last lab of the quarter; it's a make-up lab day. Make-up labs are penalized 1 point unless there are special extenuating circumstances. Only one lab can be made up for the quarter! (9) Individuals can leave once they have collected their data and obtained a result, but before anyone can leave you must check out with the instructor. At that time the instructor checks the lab station to see that it is cleaned up and in the same order as found. No one in the group can leave before the station is in order. The instructor then initials the raw data and results for each individual. Be sure to have your work initialized. Points will be deducted from reports not having an initialed data sheet. (10) There is a \$15.00 lab fee for this course. (11) **Remember that a minimum of half the total labs (rounded up) assigned must be completed to pass the course.**

Activities, attendance, participation, workbook (14.5% of grade): (1) During many classes, once or more a week, expect a quiz, project, oral discussion, group discussion, or some other in class activity. Some assignments may be a formal group effort. (2) Assignments from the "Practicing Physics" workbook are counted as in class activities and are graded at 1 point per page (noted by a check per page). The "Practicing Physics" workbook pages assigned in class and on Blackboard will be collected after each test; when submitting the "Practicing Physics" workbook assignment, staple them together by chapter. Some chapters will have no assignments such as chapters 8, 29, 30. (3) "Practicing Physics" workbook assignments must use the workbook pages, or they may be done on Xerox copies from the workbook. No "Practicing Physics" workbook assignment may be dropped. Periodically check Blackboard to see what workbook pages have been assigned. (4) Blackboard assignments are usually worth 2 points and cannot be dropped and cannot be made up. Often weekly blackboard assignments will be posted. You usually will have a week to post your blackboard response. (5) A quiz, an oral question, or some other short answer activity worth 2 points will often occur in class. One of these in class activity may be dropped during the term. (6) Formal group activities occur very rarely but, if and when there is a formal group activity, a formal group will consist of several students, but no more than 5. Formal groups will be established in class, and will be quasi permanent. I will have some say in the formal groups' make up. A formal group can vote to expel a member if that person fails to contribute or is in some way disruptive. In that case it is up to that person to convince another formal group to allow him/her to join. If this fails, then that person works alone. Each individual will sign a formal group contract. Typically the class will observe some phenomenon or question. Then the class will break into their formal groups, discuss their observations, and write a short paragraph addressing some aspect of the phenomenon. If it is a formal group activity, then each member in the group must have their name on the final product. After approximately 15 minutes their results will be randomly traded with the other formal groups who will grade the work during the following class discussion. The grade assigned will be based on somewhat subjective criteria such as being concise, complete, understandable, and well argued. Much of the grade will depend on effort but having the right answer helps. The point value may depend on the particular problem, but usually the grade will be 1 for being physically in class but little else, 2 for doing something or about average, 3 well above average. When formal group effort is handed in, I

take one paper with every formal group member's name on it and assign one grade so all in the formal group receive the same grade. Those absent from the formal group receive a -1.

Other Text Homework (0.1%): You may choose any exercise/problems you want. For each 10 text homework exercise/problems you get 1 point. Points are assigned in groups of 10 exercise/problems. Therefore, if you do 15 problems you get 1 point; if you do 20 problems, you get 2 points etc up to a maximum of 40 problems, i.e. 4 points. An odd number of these exercise/problems for each chapter have solutions in the workbook. These chapter exercise/problems are due in groups or units of 1,2,3, or 4 after each test. **DO NOT STAPLE TOGETHER WITH THE "Practicing Physics" WORKBOOK PAGES! "Practicing Physics" workbook pages are separate assignments, see above!** (3) Do your problems in sequential order preferably on the front side of the page. For both the exercises and problems, you must always answer in a complete sentence or, for the exercises provide complete equations, substitutions, and finally give the resulting answer w/ units, (sometimes a sketch will do). Do your work neatly. If it can't be read or followed, it will not be graded. To be graded the problems must adhere to the above format and be neat and legible. Do not turn in scratch work, scribbled answers, etc. (4) Homework is primarily graded for effort; I don't look at this work in detail. Also note that this contribution to your overall grade is very small and acts more like it is extra credit.

Mathematics: I cannot state exactly the level of math in the course since your perception and my idea of math is likely to be quite different. However, the math will be minimal especially on the tests. However, some math and math concepts are necessary in physics (and most of life), for example we need proportions, ratios and comparisons. Generally the labs and the exercise portion of the homework is where the most math is encountered.

Academic conduct, withdrawal: *Dishonesty and cheating defrauds all those in this class and the college community. While cooperative effort on homework and lab can be helpful and useful to your understanding and is encouraged, it will not be tolerated on exams. You may want to read the student Conduct Code and Rules of Enforcement. Depending on the magnitude of the offense, expulsion from SFCC, expulsions from class or loss of that grade are likely consequences. **It is the student's responsibility to officially withdraw from class. The last day to withdraw is Mon., Feb. 23.** I only give Z grades to those students missing this deadline who have extenuating circumstances, and who have discussed their situation with me. If by the time the grades are due, the student has not officially withdrawn or seen me, I give a 0.0 grade. Generally, I do not assign an incomplete grade, but instead give the grade earned at that time with the intention of filling out a grade change form when the work is completed. For the rare incomplete, the student should see me with enough lead-time to discuss their situation and to fill out the Incomplete Contract and get the required signatures.*

Emergency & safety procedures: *Be calm and collected if emergency procedures or evacuation procedures are instituted (sometimes easier said than done). Try to judge the severity of the emergency to decide whether to bring your belongings, since you may not be allowed back into the classroom for some time. In good weather evacuate to parking lot 9C (west of building 18); during inclement weather evacuate to building 3/14 (social*

science). *Laboratory safety will be discussed in more detail in lab. As a general rule, never play with dials, switches, or equipment, or turn on equipment until instructed to do so. Anyone with a pacemaker or other health condition should inform the instructor. Caution, some lab experiments use very high voltages.*

As a final note, please remember you may always come into any lab I have for any course to ask question or visit.

Additional Notes:

1. Labs meet thrice per week: two on Monday and one Tuesday, but you only attend the one lab you signed up for. You may with instructor permission attend an alternate lab time. You may also come into any lab for any class to ask questions!
2. Should you need to make up a lab for any reason, there is an automatic 1 point penalty. Thus you should make every effort to attend one of the other labs.
3. Last day to drop or make schedule changes is Mon., Feb. 23.
4. Your **FINAL** is Tues., March 24, 2009 at 10:30 to 12:30 in the lecture room

Physics 100 TWRF lecture : 10:30-11:30**Win 2009****w/Rodman**

01.05 No lecture No LAB	01.06 Intro; "business" No LAB	01.07 Intro, CH 1	01.08 Intro, CH 1	01.09 No lecture; (LDP) CH 3
01.12 No Lecture LAB 1	01.13 CH 3 LAB 1	01.14 CH 2	01.15 CH 2	01.16 CH 4
01.19 <i>Holiday</i> No LAB	01.20 CH 4 No LAB	01.21 CH 5	01.22 CH 5	01.23 TEST 1 (Intr,1,2,3,4,5)
01.26 No Lecture LAB 2	01.27 CH 6 LAB 2	01.28 CH 6	01.29 CH 7	01.30 CH 7
02.02 No Lecture LAB 3	02.03 CH 7 LAB 3	02.04 CH 8 (p131-2,144-150)	02.05 CH 9	02.06 CH 9
02.09 No Lecture LAB 4	02.10 CH 9 LAB 4	02.11 CH 9	02.12 CH 10	02.13 TEST 2 (6,7,part8,9,10); (LDP)
02.16 <i>Holiday</i> No LAB	02.17 CH 15 No LAB	02.18 CH 15	02.19 CH 16	02.20 CH 16
02.23 No Lecture LAB 5	02.24 CH 17 LAB 5	02.25 CH 17	02.26 CH 18	02.27 CH 19
03.02 No Lecture LAB 6	03.03 CH 19 LAB 6	03.04 CH 20	03.05 CH 20	03.06 TEST 3 (15,16,17,18,19,20)
03.09 No Lecture LAB 7	03.10 CH 29 (p562-566) CH 30 (p582-586) LAB 7	03.11 CH 11 CH 31	03.12 CH 32 CH 33	03.13 No lecture; (LDP) CH 34
03.16 No Lecture Make-Up LAB	03.17 CH 33 CH 34 Make-Up LAB	03.18 CH 34	03.19 TEST 4 (11,part29, part30,31,32,33,34)	03.20 <i>Dead Day</i>
03.23 FINALS	03.24 YOUR FINAL @10:30	03.25 FINALS	03.26 work day	03.27 work day
03.30 spring break	03.31 spring break	04.01 spring break	04.02 spring break	04.03 spring break