PHYS 1111 Syllabus

Fall 2009

Prof. Uwe Happek

http://www.physast.uga.edu/classes/phys1111/Happek/

Introduction

Welcome to Physics 1111. This course is the first half of a two-semester introductory sequence, focusing on Mechanics, the study of motion. Mechanics is an old discipline that describes a broad range of phenomena, and since it describes many aspects of our daily life, we can rely in part on our "gut feeling": if an explanation of a motion feels wrong, it likely is. However, for a full understanding, including precise predictions, we will introduce the Laws of Motion, and we will do this in the language of mathematics. You are expected to have fundamental knowledge of algebra, geometry, trigonometry, and basic concepts such as units and dimensions, scientific notation, and significant figures. Please read Appendix A of your textbook to see how prolific you are, you might have to brush up your skills. I will reintroduce mathematical concepts when we'll need them during the semester.

If you are a physics or astronomy major, or if you're considering those possibilities, then this course is probably not for you. Please talk to Prof. Wiegert (Physics) or Prof. Shaw (Astronomy) for help in exploring your options.

Basic Information

Instructor:	Uwe Happek	Email:	`uhappek@physast.uga.edu`
Office:	236 Physics Building	Phone:	542-2859

Class:	MWF Period 5 (12:20 - 1:10), 202 Physics Building
Lab:	Various times, 321 Physics Building
Final Exam:	TBA
Office hours:	MWF 1:25 - 2:15

Required Course Materials

- *Physics*, 4th ed., by J. S. Walker (Pearson Prentice Hall). You may use older editions if you wish (or any other introductory physics book, for that matter), but you are responsible for knowing about any changes in content.
- *Experiments for an Introductory Physics Course*, 5th ed., by R. M. Wood and S. P. Lewis. This is the same lab manual from the first semester of physics, and will be used in your lab section.
- A simple scientific calculator for exams, which must be *non-programmable, non-graphing, and non-symbolic.* Examples of acceptable calculators include the TI-30X series or the Sharp EL-531. The use of calculator graphing, algebra-solving, or programming functions will *not* be permitted for any exam, nor will PDAs, cellphones, etc.

Online Course Resources

- The course Website at http://www.physast.uga.edu/classes/phys1111/Happek will be used to disseminate course information: announcements, homework assignments and solutions, exam solutions, practice problems, etc.

Other Student Resources

- If you cannot come to my regular office hours, or need additional help, please set up an appointment (by email, by phone, or in person) to see me outside of class. In addition, I have an open door policy: if my office door is open, you are welcome to see me, for whatever reason.
- The textbook publisher has a companion Website for an earlier edition, at the URL http://www.prenhall.com/Walkerphysics/. This site contains summaries and practice problems for each chapter, and is a good way to increase your confidence and familiarity with the material.
- There is a Student Study Guide with Selected Solutions for this textbook that may be useful. Information on this and other resources is provided in your textbook.
- Tutors are available either through the UGA Tutoring Program at Milledge Hall, or directly through the Department of Physics and Astronomy (for hire).

Grading Policy

Your overall grade will be determined from your course performance, weighted as follows:

30% Cumulative final exam grade
45% Three in-class exams (20%/15%/10% for highest/middle/lowest grades)
25% Laboratory grade

Letter grades will be assigned from your overall numerical grade according to the following:

A 90.0 **A**– 87.5 **B**+ 85.0 **B** 80.0 **B**– 78.5 **C**+ 75.0 **C** 70.0 **C**– 67.5 **D** 60.0 **F**

Overall numerical grades will *not* be rounded (i.e., 89.9 is still an A–).

Any requests for a regrade of an assignment or an exam must be made no later than one week after the item is returned. For a regrade I will look at the entire assignment/exam, not just one problem, and this may raise *or* lower your score.

Exams

There will be three in-class exams and a cumulative final exam (the final exam is mandatory, don't even ask. All exams will be closed-book and closed-notes. You may use a simple scientific calculator that is *non-programmable, non-graphing, and non-symbolic.* (Calculators such as the TI-83 or TI-84 are *not allowed.*) I'll provide you with a formula sheet for each exam, and will also post it to the Web before the exam. The purpose of the formula sheet is to focus your studying on understanding rather than memorization. If you feel you need an equation that's not on the sheet, don't memorize it; learn how to derive it from the equations that *are* given.

Exams will comprise both conceptual and problem-solving questions, very similar to homework problems and in-class examples. Unless told otherwise, you must show your work on each problem in order to receive full credit. Partial credit is awarded (based on your work) for incomplete or incorrect answers, so it is usually in your best interest to attempt every problem. Detailed solutions will be posted to the Web after each in-class exam.

Exams are designed to test your understanding thoroughly and to distinguish among levels of performance. In order for exams to be effective assessments, raw scores will often be lower than the expectations created by the "standard" letter grade cutoffs. These raw exam scores will be converted into "rescaled" numerical grades. This conversion is based partly on the distribution of raw scores, but also on the difficulty level of the exam. A rescaled numerical grade will *never* be lower than your raw score. Also, unlike a typical curve, you are *not competing* against your peers; it is possible for everyone to get an A or B, for example.

There will be no make-up exams. If you need to miss an exam for a *serious, documentable* reason, your final exam grade will be substituted for your one of your midterms, making your final exam worth 40-50% of your overall grade (depending on how this grade compares to your other midterm exam grades). This policy is designed to handle unavoidable situations like medical or family emergencies, or previously scheduled academic or athletic events. You *must* contact me as soon as you know of the conflict (before the exam if at all possible), and you must provide sufficient documentation in a timely fashion. (An example of *unacceptable* documentation is a note stating only that you visited the health center, with no indication

of the severity of your illness.) Do not simply presume that your situation or documentation merits an excused absence; that determination is not your prerogative. *Unexcused exam absences will result in an exam grade of zero.*

A make-up final exam will be given only for students with legitimate, documentable reasons as explained above.

Homework

Regular, personal practice with physics problems is essential to understanding physics, so you will have weekly homework assignments. While the homework will not be graded, it is essential that you attempt the homework and compare your work with the solutions posted on the course web site. Failure to work on the assigned problems will lead to a low grade in this course (unless you know Mechanics well, in which case you should study a subject about which you don't know everything already): the test and final exam problems will be similar to homework problems.

Teamwork can be a very effective way to learn, so I encourage you to collaborate with your classmates on homework problems.

Reading Quizzes

You are required to read the assigned textbook sections *before* the class in which those topics are discussed.

Regular reading is an important part of your preparation for class. Don't expect to understand everything in the textbook at first sight! However, your learning effectiveness *in* class will depend on having encountered the material *prior* to class. You should jot down notes and questions as you read; this will aid in organizing your class notes and will remind you to ask for clarification.

Extra Credit

There is no extra credit in this course.

Academic Honesty

The University of Georgia has a comprehensive policy on academic honesty, described in a document entitled *A Culture of Honesty*. This document is available through the Office of the Vice President for Instruction or online at `http://www.uga.edu/ovpi/`. This policy covers all academic work.

As a UGA student, you are responsible for knowing and understanding this policy. If you have *any* question about the appropriateness of your actions or your work, you are obligated to ask me for clarification.

I take the issue of academic honesty very seriously, and it is my responsibility to uphold the University's policy. This means, among other things, that I won't hesitate to report my suspicions of dishonesty to the Office of the Vice President for Instruction. Typical consequences of cheating on homework or an exam range from receiving a zero for that grade, to failing the course.

Student Responsibilities

- Above all, you have the right to expect courtesy from your fellow students, and the same will be asked of you. Courtesy includes the expectation that everyone will come to class ready and willing to learn and to interact, and able to ask or answer questions freely. Courtesy also implies that you arrive on time and stay until the end of class. Disruptions or distracting behavior will not be tolerated.
- You're responsible for all topics discussed in class, all class announcements, and all assigned textbook reading (even if some sections aren't explicitly covered in class). Absence does not excuse you from this responsibility. While attendance is not strictly mandatory, your understanding of physics (and your grade) will suffer if you skip class. If your schedule makes it difficult to attend class regularly and on-time, you shouldn't take this course.
- You are responsible for the material covered in the assignments. I can't emphasize enough the importance of homework! Just as with other areas of learning, your physics problem-solving skills will improve only by practicing regularly and conscientiously. You won't get much learning value from homework if you leave it for the last minute, or depend on the efforts of others.
- Attend your assigned lab section and follow the TAs' instructions. Refer to the lab syllabus for more information. If you have lab-related questions, please see Mr. Tom Barnello in Room 327.
- Ask for clarification on anything you find unclear, ambiguous, or unspecified. This includes both course policies and physics topics. Ignorance is never a valid excuse.
- Know the policies concerning withdrawals and incompletes, published in the UGA *Undergraduate Bulletin*.

  For withdrawals before the midpoint, I will enter a grade of WP if I judge that you have made a sincere, significant effort in the class. *It is possible to earn a grade of WF before the midpoint;* don't assume otherwise! You are expected to officially withdraw in a timely fashion once you have made that decision.

PHYS 1111 Class Schedule
Fall 2009

The schedule below is approximate and subject to modification, *possibly including exam dates*. Significant schedule changes will be announced in class and/or on the course web site. Note that the midpoint withdrawal deadline is October 22, 2009.

Class	Date	Reading	Topic
1	M 17 Aug	1.1 - 1.8	Introduction
2	W 19 Aug	2.1 - 2.3	1-d Kinematics
3	F 21 Aug	2.4 - 2.5	1-d Kinematics
4	M 24 Aug	2.6 - 2.7	1-d Kinematics
5	W 26 Aug	3.1 - 3.3	Vectors
6	F 28 Aug	3.4 - 3.5	Vectors
7	M 31 Aug	3.6	Relative Motion
8	W 02 Sept	4.1 - 4.2	2-d Kinematics
9	F 04 Sept	4.3 - 4.4	2-d Kinematics
	M 07 Sept		Labor Day
10	W 09 Sept	4.5	2-d Kinematics
11	F 11 Sept	5.1 - 5.3	Newton's Laws
12	M 14 Sept	5.4 - 5.5	Newton's Laws
13	W 16 Sept		Test 1, Chapters 1 - 4
14	F 18 Sept	5.6	Newton's Laws
15	M 21 Sept	6.1 - 6.2	Friction
16	W 23 Sept	6.3 - 6.4	Equilibrium
17	F 25 Sept	6.5	Circular Motion
18	M 28 Sept	7.1 - 7.2	Work and Energy
19	W 30 Sept	7.3 - 7.4	Work and Energy
20	F 02 Oct	8.1 - 8.2	Energy Conservation
21	M 05 Oct	8.3 - 8.4	Energy Conservation
22	W 07 Oct	8.5	Energy Conservation
23	F 09 Oct	9.1 - 9.3	Momentum
24	M 12 Oct	9.4 - 9.5	1-d Collisions
25	W 14 Oct		Test 2, Chapters 5-8
26	F 16 Oct	9.6 - 9.7	2-d Collisions
27	M 19 Oct	10.1 - 10.2	Rotational Kinematics
28	W 21 Oct	10.3 10.4	Rotational Kinematics
29	F 23 Oct	10.5 - 10.6	Rotational Kinematics
30	M 26 Oct	11.1 - 11.2	Rotational Dynamics
31	W 28 Oct	11.3 - 11.4	Rotational Dynamics
	F 30 Oct		Fall Break

Class	Date	Reading	Topic
32	M 02 Nov	11.5	Rotational Dynamics
33	W 04 Nov	11.6 - 11.8	Rotational Dynamics
34	F 06 Nov	12.1	Gravitation
35	M 09 Nov	12.2 - 12.3	Gravitation
36	W 11 Nov	12.4 - 12.5	Gravitation
37	F 13 Nov	13.1 - 13.2	Simple Harmonic Motion
38	M 16 Nov	13.3 - 13.4	Simple Harmonic Motion
39	W 18 Nov		Test 3, Chapters 9 - 12
40	F 20 Nov	13.5 - 13.6	Simple Harmonic Motion
	M 23 Nov		Thanksgiving
	W 25 Nov		Thanksgiving
	F 27 Nov		Thanksgiving
41	M 30 Nov	14.1 - 14.3	Waves and Sound
42	W 02 Dec	14.4 - 14.5	Waves and Sound
43	F 04 Dec	14.7 - 14.8	Superposition
44	M 07 Dec	14.9	Interference
45	W 09 Dec		Course Review