

Physics 1 (PHY2053), Fall 2014 Syllabus

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Table of Contents:

- [1 General Education Objectives](#)
 - [2. Student Learning Outcomes](#)
 - [2.1 Content](#)
 - [2.2 Communication](#)
 - [2.3 Critical Thinking](#)
 - [3 Assessing Student Learning Objectives](#)
 - [3.1 Content](#)
 - [3.2 Communication](#)
 - [3.3 Critical Thinking](#)
 - [4 General Information](#)
 - [4.1 Course websites:](#)
 - [4.2 Course Instructors:](#)
 - [4.3 Textbook:](#)
 - [5 Course Schedule](#)
 - [6 Grading](#)
 - [6.1 Grade components:](#)
 - [6.2 "Drop worst %" factors](#)
 - [6.3 Exams:](#)
 - [6.4 Discussion Sections, Quizzes:](#)
 - [6.5 Homework](#)
 - [6.6 In-class H-ITT clicker questions](#)
 - [6.7 How to succeed in this class:](#)
 - [7 Office Hours](#)
 - [8 Attendance Policy](#)
 - [9 Honor Code](#)
 - [10 Students With Disabilities](#)
 - [Appendix: Detailed Course Schedule](#)
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1 General Education Objectives

Physical science courses provide instruction in the basic concepts, theories and terms of the scientific method in the context of the physical sciences. These courses focus on major scientific developments and their impacts on society, science and the environment, and the relevant processes that govern physical systems.

Students will formulate empirically-testable hypotheses derived from the study of physical processes, apply logical reasoning skills through scientific criticism and argument, and apply techniques of discovery and critical thinking to evaluate experimental results.

2. Student Learning Outcomes

2.1 Content

Students will attain knowledge of the concepts, principles, terminology and methodologies used to describe simple object motion (translational, rotational and combined), basic properties of matter, harmonic oscillations and wave motion.

2.2 Communication

Students will learn to express Physics-related ideas in written and oral form.

2.3 Critical Thinking

Students will learn to analyze information carefully and logically from multiple perspectives, using discipline-specific methods, and develop reasoned solutions to problems.

3 Assessing Student Learning Objectives

3.1 Content

Content learning will be assessed by solving problems in homework, quizzes and exams, as well as answering in-class clicker questions. Information in the problems and questions will be presented in standard Physics terminology. Solving the problems and answering questions will require applying Physics methodology, derived from basic concepts and principles.

3.2 Communication

Communication will be assessed primarily through grading of weekly quizzes. The grade awarded for the weekly quiz reflects not just the final value computed as the answer to a problem, but also evaluating the reasoning by which the student has reached this conclusion.

3.3 Critical Thinking

Critical thinking will be assessed through solving homework, quiz, and exam problems. Information provided in problems will sometimes be redundant, unnecessary, or irrelevant. The student will have to critically analyze the information provided and base their deduction only on data relevant to the presented problem.

4 General Information

4.1 Course websites:

There are two course websites that you will need to use.

- The Physics Dept. Course website: <http://www.phys.ufl.edu/courses/phy2053/fall14/>
This site contains a minimal information about the course and exists only to provide a place to serve this syllabus document for public consumption.
- The UF e-Learning website for the course: <https://ufl.instructure.com/>
We are running our course through Canvas. This site contains previous exams, correct answers for your exams, class lectures, and course grades. In addition, you will access the McGraw-Hill Connect online homework system through this Canvas website. Estimated course grades will be posted here periodically (after each of the exams). Your final course grades will be posted here after the final exam.

Our intention is to keep the number of different web pages as low as possible to avoid confusion if the web page materials are not fully synchronized.

4.2 Course Instructors:

Prof. Ivan Furic **Office:** New Physics Building 2037

Prof. Heather Ray **Office:** New Physics Building 2237

Office hours for course instructors and teaching assistants are listed in Section 7. **Only email through the official course e-Learning site will receive a response. E-mail to the instructor's direct accounts will be ignored.**

4.3 Textbook:

Title: Physics, Volume 1 Authors: Giambattista et al

Publisher: McGraw-Hill, Edition: 2nd, (Vol. 1)

E-book format bundle with Connect Physics access: ISBN 9780077320638

Paper book format bundle with Connect Physics access: ISBN 9780078016356

The online Connect Physics homework in this course will be graded and will count towards your overall course grade. Textbooks with the above ISBN have a Connect Physics access code bundled with the book. If you prefer, you can purchase the textbook and the Connect Physics homework access separately.

5 Course Schedule

The detailed course schedule is listed in Appendix A of this document, because it spans several pages.

6 Grading

6.1 Grade components:

Your course grade will not be assigned based on a curve, but based on a 100-point fixed scale:

A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
≥ 92	≥ 87	≥ 82	≥ 75	≥ 70	≥ 65	≥ 60	≥ 55	≥ 50	≥ 45	≥ 40	< 40

The advantage of the fixed scale is that you are not competing with other students to “get ahead of the curve”. Everyone who works hard can do well in the class. The 100 points that determine the overall grade are divided so that 75 points are earned through exams, 15 points through quizzes and 10 points through online homework. Beyond this, you can earn up to 5 “bonus” points by answering in-class H-ITT clicker questions.

Assignment	Max Points	Drop %
Exam 1	25	0%
Exam 2	25	0%
Final Exam	25	0%
Quizzes	15	10%
Homework	10	10%
Total Course Points	100	N/A
H-ITT Bonus**	5	20%

** optional bonus points

6.2 “Drop worst %” factors

It is unrealistic to expect that one will not have a bad day or week, be that due to illness or some other personal reason, during the semester. To efficiently accommodate for this, we use a “Drop worst %” factor that mimics the effect of dropping some fraction of quizzes / homeworks / H-ITT in which your performance was hindered. If a student has scored a total N_{comp} points in one of the grade components and that grade component has a “Drop worst 10%” factor, the number of points entering the final grade calculation (N_{grade}) will be:

$$N_{grade} = N_{comp} + (N_{comp} \times 10\%) = N_{comp} \times 1.1$$

In the following sections, we describe the different grade components and list their corresponding “Drop worst %” factors.

6.3 Exams:

There are two in-term exams and a final exam. Each exam contributes 25 points to your final grade. Every point on the exam corresponds to one point toward the final grade.

There is no “Drop worst %” correction for exams. The date and time for each exam, and the chapters it covers are listed in the Course Schedule (Section 5, Appendix A).

Exams will not take place in the lecture hall in the physics building. Room assignments where you will take an exam will be announced during class in the days leading up to the exam and posted on the course eLearning page. Exams are multiple choice with your answers bubbled in on Scantron sheets. Mark your answers carefully. What you mark will determine your score (independent of your having meant otherwise).

You should bring a calculator, #2 pencils, an eraser and your picture ID (preferably your UFID) to the exam. Calculators may not be shared and may not have electronic communications capability. **Cell phones as calculators are not allowed. Private formula sheets are not allowed.** Scrap paper and **an official formula sheet for the exam will be provided.**

If you miss one of the two exams during the semester, a valid excuse will allow you to take the cumulative make-up exam to replace the zero on the missed exam. Valid excuses are officially sanctioned UF events, medical excuses or family emergencies. There will be one cumulative make-up exam (covering material from both exams) given on **Wednesday December 10, 2014**. The grade on this make-up exam will replace the missed exam.

The two in-term exams and the final exam will be equally weighted and count for a maximum of 75 points (out of 100) towards your overall course grade. **None of the exam grades will be dropped in the grade calculation.**

6.4 Discussion Sections, Quizzes:

Discussion sections **start the first week of classes (i.e. Monday Aug 25, 2014)** and **quizzes start on Wednesday and Thursday August 27-28, 2014**. A quiz will be administered during one of your discussion section meetings per week (**10 total quizzes**).

The MW and WF discussion sections will have their quizzes on Wednesday. The TR discussion sections will have their quizzes on Thursday.

The quizzes will test how well you learned the concepts and methods of the assigned practice homework problems. The quiz will be very closely related to your homework problems. The problems may be restructured to provide guidance, allow awarding of partial credit and discourage memorization of only the formula for the solution.

You are expected to learn how to do the homework problems on your own without any notes or other help (i.e. **there are no formula sheets for the quizzes!**). In doing the online homework you can get help in discussion section, office hours, from tutors and from other students. However, in the end you must learn the methods needed to do the problems on your own. This differentiates study help from academic fraud. The protocol for dealing with academic fraud in this course are detailed in Section 9, "Honor Code".

The quizzes will give partial credit (0-5 points) so if you set up the problem correctly but make an algebraic mistake you will get some of the credit for the problem.

You will be allowed to make-up a maximum of three missed quizzes provided that you have a valid documented excuse (e.g. medical note). You will have to take the make-up quiz within 3 weeks of your missed quiz and there will be no make-up quizzes after **Dec 10, 2014**. There is a 10% drop factor for quiz scores (see Section 5.2 for explanation). The quiz portion of the course will count for 15 points (of 100) toward the overall course grade.

6.5 Homework

There are **two** components to your homework grade. One part of your grade will come from the near-weekly assignments, due Sundays by 11:59 pm. The other component comes from comprehension problems that are due the day before every single lecture.

On-line graded homework is due by 11:59 pm almost every Sunday starting on September 7, 2014. To register for the online homework system you will need to enter the access code that came with the textbook. Additional instructions for accessing the homework system through Canvas can be found on the Canvas course site, under Files -> Connect Homework.

Comprehension problems open at 12:00 am and close at 11:59 pm, the day before the lecture on the relevant material. For example, if we are covering waves in class on a Thursday then the comprehension problem on waves will be due by 11:59 pm on Wednesday before lecture. These comprehension problems are worth 1 point per problem, and will be folded in to your overall homework grade. They are intended to help you to understand core concepts, so please take them seriously.

The problems come from your textbook. For the weekly homework sets, individual problems will be drawn from pools of questions and the numbers will be randomized for each student (i.e. every student will have different problems with different numbers). The course Schedule table (Section 5) lists the homework due dates. Once the due date/time (e.g. Sunday 11:59 pm) has passed, no further input of answers for credit will be accepted.

Information on how to access the homework system is found on the course e-Learning site, under Files -> Connect Homework.

There is a 10% Drop Factor applied toward online homework points. The homework portion of your grade will count for 10 points (of 100) toward the overall course grade. It is your responsibility to get all of your homework in on time. Last minute computer/local server problems will not excuse you from this responsibility.

In doing the online homework, discussions with colleagues and/or tutors about methods of posing and solving a homework problem are allowed. You have to derive, on your own, any result that you submit for grading. This means that:

- Having someone else (e.g. a colleague, a tutor, a service) solve the problem for you constitutes academic fraud.
- Calculating the solution based on a formula provided by a colleague, tutor, or service constitutes academic fraud.
- Having a colleague, tutor, or tutoring service “walk” you through solving the problem constitutes academic fraud.

If you are unsure whether an action constitutes academic fraud, ask the lecturers for clarification **before** pursuing it. Failure to seek clarification does not provide any excuse or mitigating factor when dealing with academic fraud. The protocol for dealing with academic fraud in this course are detailed in Section 9, “Honor Code”.

6.6 In-class H-ITT clicker questions

You will be able to earn bonus points toward your overall course grade by coming to class and answering the H-ITT questions. However, participating in the H-ITT in class questions is purely optional. You can earn a perfect grade in the course (i.e. 100 points) without the H-ITT bonus points. The in-class H-ITT questions begin to count on Thursday August 28, 2014, but you should get your remotes sooner for practice questions that will help you to become familiar with the system before the questions start counting for bonus points.

You should purchase the H-ITT remote transmitter associated with the in-class student response system. This transmitter will let you respond to questions posed during class. Your response will be recorded. Just responding will get you 1 point credit for the question, while responding correctly will get you 2 points credit.

To get the credit you must register with the auditorium H-ITT system. To register, click <http://www.phys.ufl.edu/~hitt/> at your earliest opportunity and follow the instructions on that page. It is your responsibility to ensure that you have purchased the correct model of clicker, that your remote is functioning properly, and that you are sending on the correct channel (see [website above](#) for link to instructions for setting the remote channel). It is recommended that you set the channel at the start of each lecture. Lights on the remote will indicate that your answer has been recorded on the system.

You can earn a maximum of 5 bonus points toward your overall course grade by answering the H-ITT questions. There is a 20% drop factor for HITT question points.

6.7 How to succeed in this class:

1. It is expected that a successful student will invest at least twelve hours studying and problem-solving per week outside of class. Do not expect a good grade if you are not prepared to work this much.
2. Read the assigned chapters and complete the comprehension problem before coming to lecture. The importance of this cannot be overemphasized.
3. Work as many problems as possible on a weekly basis; the assigned (graded) ones represent the minimum recommended set. Go to instructor's and discussion leaders' office hours for individual help (this can be highly effective and should be regarded as free tutoring; make use of it!).
4. Keep up on a regular basis; cramming doesn't work for learning physics.

7 Office Hours

Students are encouraged to take advantage of all available office hours, not just those of the TA of their discussion section. This allows for greater flexibility in accommodating the diverse schedules of the students taking this course. The available office hours are:

Period	Time	Mon	Tues	Wed	Thurs	Fri
2	8:30-9:20		Furic		Furic	
3	9:35-10:25		Mirshamsi	Brooker	Mirshamsi	
4	10:40-11:30		Billman			
5	11:45-12:35	Kumar	Kumar			
6	12:50-1:40	Billman	Ray	Brooker	Ray	
7	1:55-2:45		Majewski			
8	3:00-3:50		Majewski			
9	4:05-4:55			Hochman		
10	5:10-6:00			Hochman		
11	6-15-7:05					

Note: this table will be updated when all TA hours have been finalized.

8 Attendance Policy

Please consult the official [University Policy for Attendance](#), linked from the UF Registrar's web site.

9 Honor Code

The UF Honor Code applies to all aspects of this course. It is required that you report any possible infractions to your instructor immediately.

Violations of the UF Honor Code, including any online homework related academic fraud, will be processed to the full extent of the Honor Code. If the Dean of Students Office confirms a first violation, the automatic minimum penalty will be a failing grade in the course. Otherwise, the student will be referred to the Director of Student Conduct and Conflict Resolution. According to the Honor Code, a student who receives a course grade penalty is not permitted to withdraw from the course.

The Honor Pledge:

We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied:

"On my honor, I have neither given nor received unauthorized aid in doing this assignment."

Full documentation about the honor code can be found at the following link:

<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>

10 Students With Disabilities

Students requesting classroom accommodation for disabilities must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor (Furic or Ray) when requesting accommodation. Drop this document off at the Physics Dept Main Office (NPB 2201) and you will be provided with a PHY2053 Accommodated Test Request (ATR) Form for Fall 2014. This form must be filled out by the student and returned to the Disability Resource Center (DRC) at least one week before the first exam. The Accommodated Testing Service (ATS) at DRC will then administer all the exams.

More information about the Disabilities Resource Center can be found at

<https://www.dso.ufl.edu/drc>

Appendix: Detailed Course Schedule

Week	Lect. #	Date	Topic	Chapters
1	1	08/26/14	Organization / Information, Introduction: Units, Dimensional Analysis	1.1 - 1.6
		08/27/14	Comprehension HW 1 Problem due	2.1 - 2.3
2	2	08/28/14	Position, Displacement, Velocity, Acceleration	2.1 - 2.3
		09/01/14	Comprehension HW 2 Problem due	2.4 - 2.6
3	3	09/02/14	Linear Motion, Free Fall	2.4 - 2.6
		09/03/14	Comprehension HW 3 Problem due	3.1 - 3.4
4	4	09/04/14	Motion in a Plane	3.1 - 3.4
		09/07/14	HW 1 due	1.1 - 2.6
5	5	09/08/14	Comprehension HW 4 Problem due	3.5 - 3.6
		09/09/14	Constant Acceleration, Relative Velocity	3.5 - 3.6
6	6	09/10/14	Comprehension HW 5 Problem due	4.1 - 4.3
		09/11/14	Force, Inertia, Newton's Laws (1st and 2nd)	4.1 - 4.3
7	7	09/14/14	HW 2 due	3.1 - 3.6
		09/15/14	Comprehension HW 6 Problem due	4.4 - 4.5
8	8	09/16/14	3rd Newton's Law, Gravity	4.4 - 4.5
		09/17/14	Comprehension HW 7 Problem due	4.6 - 4.7
9	9	09/18/14	Contact Forces, Tension	4.6 - 4.7
		09/21/14	HW 3 due	4.1 - 4.7
10	10	09/22/14	Comprehension HW 8 Problem due	4.8 - 4.11
		09/23/14	Applying Newton's Laws, Apparent Weight, Air Resistance	4.8 - 4.11
11	11	09/24/14	Comprehension HW 9 Problem due	5.1 - 5.3
		09/25/14	Uniform Circular Motion, Radial Acceleration	5.1 - 5.3
12	12	09/28/14	Review for Exam 1	1.1 - 4.12
		09/28/14	HW 4 due	4.8 - 5.3
13	13	09/29/14	Comprehension HW 10 Problem due	5.4 - 5.7
		09/30/14	Circular Orbits, Tangential & Angular Acceleration	5.4 - 5.7
14	14	10/02/14	Exam 1	1.1-4.12
		10/01/14	Comprehension HW 11 Problem due	6.1 - 6.4
15	15	10/02/14	Energy Conservation, Kinetic Energy, Gravitational Potential Energy 1	6.1 - 6.4
		10/06/14	Comprehension HW 12 Problem due	6.5 - 6.7
16	16	10/07/14	Gravitational Potential Energy 2, Hooke's Law, Elastic Pot. Energy	6.5 - 6.7
		10/08/14	Comprehension HW 13 Problem due	6.8, 7.1 - 7.3

Department of Physics, University of Florida
Physics 1 [PHY2053] Syllabus, Fall 2014

	14	10/09/14	Power, Momentum, Impulse	6.8, 7.1 - 7.3
8		10/12/14	HW 5 due	5.4 - 6.4
		10/13/14	Comprehension HW 14 Problem due	7.4 - 7.8
	15	10/14/14	Conservation of Momentum, Center-Of-Mass, Collision	7.4 - 7.8
		10/15/14	Comprehension HW 15 Problem due	8.1 - 8.2
	16	10/16/14	Rotational Kinetic Energy, Rotational Inertia, Torque (1)	8.1 - 8.2
9		10/19/14	HW 6 due	6.5 - 7.8
		10/20/14	Comprehension HW 16 Problem due	8.3 - 8.5
	17	10/21/14	Torque (2), Rotational Equilibrium	8.3 - 8.5
	18	10/23/14	Rotational Form of Newton's 2nd Law, Motion of Rolling Objects	8.6 - 8.7
10		10/26/14	HW 7 due	8.1 - 8.7
		10/27/14	Comprehension HW 17 Problem due	8.8 - 8.9
	19	10/28/14	Angular Momentum	8.8 - 8.9
		10/29/14	Comprehension HW 18 Problem due	9.1 - 9.6
	20	10/30/14	States of Matter, Pascal's Principle, Buoyancy	9.1 - 9.6
		11/02/14	Review for Exam 2	5.1 - 8.9
11		11/02/14	HW 8 due	8.8 - 9.6
		11/03/14	Comprehension HW 19 Problem due	9.7 - 9.8
	21	11/04/14	Fluid Flow, Bernoulli's Equation	9.7 - 9.8
		11/05/14	Exam 2	5.1 - 8.9
	22	11/06/14	Elastic Deformation, Stress, Strain (skip Shear)	10.1 - 10.4
12		11/11/14	Veterans Day, No Class	
		11/12/14	Comprehension HW Problem due	10.5 - 10.8
	23	11/13/14	Simple Harmonic Motion, The Pendulum	10.5 - 10.8
13		11/16/14	HW 9 due	9.7 - 10.4
		11/17/14	Comprehension HW 20 Problem due	11.1 - 11.6
	24	11/18/14	Waves, Energy Transport	11.1 - 11.6
	25	11/20/14	Reflection and Refraction	11.7 - 11.8
14		11/23/14	HW 10 due	10.5 - 11.6
		11/25/14	Interference & Diffraction, Standing Waves	11.9 - 11.10
		11/27/14	Thanksgiving, No Class	
15		11/30/14	HW 11 due	11.7 - 11.10
		12/01/13	Comprehension HW 21 Problem due	12.1 - 12-5
	27	12/02/14	Sound Waves, Amplitude, Intensity	12.1 - 12-5
	28	12/04/14	Beats, The Doppler Effect	12.7 - 12.8
16		12/07/14	HW 12 due	12.1 - 12.8
		12/09/14	Comprehensive Review	1.1 - 12.8
		12/10/14	Make-Up Exam	
		12/13/14	FINAL EXAM: Exam Period 13 C	1.1 - 12.8

			(12:30 pm - 2:30 pm)	
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