Physics 1 (PHY2053), Spring 2015 Syllabus

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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. Particular emphasis will be put on the concepts of physical units corresponding to different quantities.

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 presented physical information using discipline-specific methods. When presented with an overabundance of information pertaining to a problem, students will learn to extract the subset of information that describes the dominant effect and develop a well-reasoned solution to the problem.

3  Assessing Student Learning Objectives

3.1 Content

Solving physics problems in a setting proctored by Physics faculty and TAs, namely quizzes, exams, and in-class clicker questions, will be used to assess the student’s mastery of Physics content. 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. For example, one of the ways that emphasis will be added to physical units is by withholding points from weekly quiz scores if the final solution omits units or the stated units are wrong.

3.3 Critical Thinking

Critical thinking will be assessed through solving quiz and exam problems in a setting proctored by Physics faculty and TAs. 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 on the dominant physical effect that will present itself, and only on data relevant to the dominant effect.

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/spring15/
  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. Grades will be posted here periodically (after each of the exams).

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

The online Connect Physics homework in this course will not be graded, but weekly quizzes and the exams rely heavily on problems from the homework. 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

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”.
6.1 Grade components:

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

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>≥ 90</td>
</tr>
<tr>
<td>A-</td>
<td>≥ 85</td>
</tr>
<tr>
<td>B+</td>
<td>≥ 80</td>
</tr>
<tr>
<td>B</td>
<td>≥ 75</td>
</tr>
<tr>
<td>B-</td>
<td>≥ 70</td>
</tr>
<tr>
<td>C+</td>
<td>≥ 65</td>
</tr>
<tr>
<td>C</td>
<td>≥ 60</td>
</tr>
<tr>
<td>C-</td>
<td>≥ 55</td>
</tr>
<tr>
<td>D+</td>
<td>≥ 50</td>
</tr>
<tr>
<td>D</td>
<td>≥ 45</td>
</tr>
<tr>
<td>D-</td>
<td>≥ 40</td>
</tr>
<tr>
<td>E</td>
<td>&lt; 40</td>
</tr>
</tbody>
</table>

Note: A grade of C- is not a qualifying grade for major, minor, Gen Ed, or College Basic distribution credit. For further information on UF’s Grading Policy, see: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx#hgrades http://www.isis.ufl.edu/minusgrades.html

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, and 25 points through quizzes. Beyond this, you can earn up to 5 “bonus” points by answering in-class H-ITT clicker questions.

The final grade you have earned in this class is boosted by extra credit in HIT, extra credit from the recitation, and by the drop worst factor for quizzes and HIT (see below). This is a huge amount of extra points, and can in fact bump a student up a letter grade on extra credit alone.

As we have already provided these boosts to your grade, there will be no additional curve applied. However, we do round up (0.5 percentage points and up gets rounded up to the next round percentage point. 59.0% does not get rounded up to 60%)
6.2 “Drop worst %” factors

It is unrealistic to expect that one will not have a bad day or week (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 / H-ITT in which your performance was hindered. If a student has scored a total $N_{\text{comp}}$ 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 ($N_{\text{grade}}$) will be:

$$N_{\text{grade}} = N_{\text{comp}} + (N_{\text{comp}} \times 10\%) = N_{\text{comp}} \times 1.10$$

or the maximum number of grade points that can be awarded for a component, whichever is smaller. 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 (Appendix A). Students that have to miss one of the three exams for an approved reason can take a comprehensive make-up exam, held at the end of the semester. The score obtained on the cumulative exam will replace the zero points 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 the entire semester) given on **Wednesday April 22,**

**Exams will not take place in the lecture hall in the physics building.** Room assignments where you will take an exam will be announced 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). We advise that you mark your solutions on the Scantron sheet as you progress through the exam, and double-check the answers at the end of the exam by comparing the marked solutions to your notes on the exam and scratch paper.

Students should bring a calculator, #2 pencils, an eraser and your picture ID (preferably Gator One ID Card) 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. Use of either constitutes academic fraud.** Scrap paper and an official formula sheet for the exam will be provided.
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. Tuesday, January 6th 2015). **Quizzes start on Monday-Wednesday January 12-14, 2015.** A quiz will be administered during the first 20 minutes of the first discussion section meeting of a week. The first quiz is used to gauge the basic math skills of the class, and is not counted toward your final grade. The remaining quizzes will be counted in your total quiz grade.

The quiz will be held on the first day of your recitation: MW discussion sections have quizzes on Monday. TR have it on Tuesday, and WF have it on Wednesday.

The quizzes will test how well students learned the concepts and methods of the assigned practice homework problems. **The quiz questions will be closely related to, but never the same as, the online homework problems.** Within PHY2053, two problems are considered to be the same as each other if the difference between the two are the values of input variables, or if they are asking the student to solve for the same variable. The problems may be restructured to provide guidance, allow awarding of partial credit, and discourage memorization of the solution formula.

There will be two questions asked on each weekly quiz. One question will come from the weekly homework sets. The second question will come from the extra recommended problems that will be posted on the Connect system. (See 6.5 Homework for more details).

Students are expected to learn how to do the homework problems on your own without any notes or other help (i.e. **there are no outside formula sheets allowed for the quizzes!**). In solving the homework, students can get help in discussion section, office hours, from tutors and from other students. In the end, students must learn the methods needed to do the problems on their 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). If a student sets up the problem correctly but makes a mistake in solving the problem (such as making an algebraic mistake or incorrectly stating the unit of the solution), they will still get some of the credit for the problem.

A student will be allowed to make-up a maximum of three missed quizzes provided that they have a valid documented excuse (e.g. medical note). The student will have to take the make-up quiz within 3 weeks of the missed quiz (not within 3 weeks of the approval for makeup). The first missed quiz (missed for any reason) is not allowed to be made-up; it
counts towards the student’s drop worst factor. Only subsequent missed quizzes may qualify for the make-up. **There will be no make-up quizzes given after Monday, April 20, 2015.** You have until Friday, April 24th, to request any re-grade or to question any grade discrepancy pertaining to the quizzes. There is a 10% drop factor for quiz scores (see Section 6.2 for explanation). The quiz portion of the course will count for 25 points (of 100) toward the overall course grade.

### 6.5 In-class H-ITT clicker questions

**Students will be able to earn bonus points toward their overall course grade by answering the H-ITT questions during lecture. Participating in the H-ITT in class questions is purely optional. A student can earn a perfect grade in the course (i.e. 100 points) without any H-ITT bonus points.** The in-class H-ITT questions begin to count on Thursday January 15, 2015. Students should get their remotes sooner for practice questions that will help them to become familiar with the system before the questions start counting toward bonus points.

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

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

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

### 6.6 Homework

There are two components to the online homework system. One part is near-weekly assignments, that open up in study mode (see below) on Friday night. One of your weekly quiz questions will be closely related to a question from this set of problems. The second part is a set of extra, recommended problems. Those will open for you in study mode on Sunday.
night. The second of your two weekly quiz questions will be closely related to a question from this component.

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.

The homework will open in study mode. This allows you to re-attempt problems, and to view guided solutions for the problems.

Homework in this course is not submitted for a grade. However, you should still follow appropriate practices of academic honesty when working on problems in Connect. 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.

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 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.

8 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:

<table>
<thead>
<tr>
<th>Period</th>
<th>Time</th>
<th>Mon</th>
<th>Tues</th>
<th>Wed</th>
<th>Thurs</th>
<th>Fri</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>8:30-9:20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>9:35-10:25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8.1 Office locations:

<table>
<thead>
<tr>
<th>Name</th>
<th>Office</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colin Barquist</td>
<td>NPB 2037</td>
</tr>
<tr>
<td>Sahar Mirshamsi</td>
<td></td>
</tr>
<tr>
<td>Drew Padgett</td>
<td></td>
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<tr>
<td>Jay Perez</td>
<td></td>
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<tr>
<td>Spencer Rosenfeld</td>
<td></td>
</tr>
<tr>
<td>Furic</td>
<td></td>
</tr>
<tr>
<td>Ray</td>
<td></td>
</tr>
</tbody>
</table>

9 Attendance Policy

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

10 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/

11 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. 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. This form only covers dates of the exams. Students wishing to use the DRC for weekly quizzes must see Prof. Ray in person.

More information about the Disabilities Resource Center can be found at https://www.dso.ufl.edu/drc

12 Counseling and Mental Health Resources

Students facing difficulties completing the course or who are in need of counseling or urgent help should call the on-campus Counseling and Wellness Center (352-392-1575; http://www.counseling.ufl.edu/cwc/).
13 Online Course Evaluation Process

Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results.

Appendix: Detailed Course Schedule