Course Syllabus for Physics 1332 (General Physics 2)  
Spring 2017

Instructor: Dr. Bob Spiro  
e-mail: spiro@rice.edu (please indicate reason for email in subject line)

Prerequisites: MATH 1331 or equivalent or permission of instructor.

Office: Robertson Hall, Rm 114

Office Hours: M-F: 9:15am – 10:30am  
M/T/Th/F: 2:30pm – 4:00pm

Texts: College Physics, available from https://openstaxcollege.org/books

Course Overview  
Phys 1332 is the second semester of a one year, non-calculus based introductory course in Physics for pre-medical and science students. It is a non-calculus introduction to electromagnetism, optics, modern- and atomic- physics.

Course Objectives  
Students will learn electromagnetism, optics, and elements of modern- and atomic-physics. Students will attain both conceptual understanding and problem solving skills using non-calculus based mathematical tools.

Math Prerequisites  
Math 1331 (Pre-Calculus, Algebra & Trigonometry) or equivalent or by permission of instructor.

Blackboard  
The Blackboard class management system will not be used in this class.

Grading: Your final semester grade comprises four components.
Scheduled In-Class Tests (45%): There will be three scheduled in-class tests during the semester. Each test will be cumulative (i.e., covering all the material studied up to that point during the semester, but weighted toward the material covered since the previous test.) Your grade \( G \) on each test will consist of two components \([G = R + C]\): (1) a raw score \( R \), based on how well you answer the test questions initially [0 to100 points], and (2) a test correction score \( C \) [0 to (100-\( R \))/3 points], based on how well you correct and fully explain the items you initially answered wrong on the test. After you receive your test results, test corrections will be due at the beginning of the next class. Each of the scheduled in-class tests represent 15% of your raw course grade. In addition, you can replace your lowest test Grade \( G \) with your final exam grade, if higher.

Final Exam (25%): (cumulative and comprehensive)

Homework (15%): Homework will be assigned on a regular basis.
**Pop Quizzes (15%)**: There will be at least 5 unannounced pop quizzes spread throughout the semester. Each of these quizzes will be worth four (4) points. Generally pop quiz questions will be multiple choice and conceptual. Calculators will **not** be needed or allowed. Pop quizzes will be designed to test concepts introduced in previous lectures and/or preparatory reading for the day’s lecture. The pop quiz component of your grade will be the total number of points you receive on the pop quizzes, up to a maximum of 15. Missed pop quizzes can only be made up for documented health reasons or for participation in official University activities, e.g., athletic or other University-sponsored reasons.

**Extra Credit**: There may be occasional opportunities to earn extra credit during the course of the semester. Rules for using extra credit are discussed below.

**Calculation of Final Course Grade**: Your raw course grade will be weighted as follows:

- Test 1 15%  
- Test 2 15%  
- Test 3 15%  
- Final Exam 25%  
- Pop Quizzes 15%  
- HW 15%

\[
\text{Raw Grade} = \text{Test 1} + \text{Test 2} + \text{Test 3} + \text{Pop quizzes} + \text{HW} + \text{Final Exam}
\]

\[
\text{Final Course Grade} = \text{Raw Grade} + \text{Extra Credit Points}
\]

**Note**: The number of Extra Credit Points that you can apply to raise your Final Grade depends on your Raw Grade. The lower your Raw Grade, the more Extra Credit Points you can use. The Extra Credit Limit is equal to \((100 – \text{Raw Grade})/3\) up to a maximum of 15. For example,

- If your Raw Grade = 90 you can use up to \((100 – 90)/3 = 3.33\) extra credit points.
- If your Raw Grade = 80, you can use up to \((100-80)/3 = 6.67\) extra credit points.
- If your Raw Grade = 70, you can use up to \((100 – 70)/3 = 10\) extra credit points.
- If your Raw Grade = 55, you can use up to \((100-55)/3 = 15\) extra credit points. If your Raw Grade is below 55, you can use, at most, only 15 extra credit points to raise your final grade.

A final course grade of 90 guarantees a letter grade of A- (or better) for the course.
A final course grade of 80 guarantees a letter grade of B- (or better) for the course.
A final course grade of 70 guarantees a letter grade of C- (or better) for the course.
A final course grade of 60 guarantees a letter grade of D- (or better) for the course.

**NOTE**: It is strongly recommended that students who earn a “C” or lower on any assignment or who perceive themselves to be struggling schedule an office visit with the instructor. In addition, consider visiting the Tutorial Services Center for additional assistance.

**Comments on Homework**

Homework will be assigned for each chapter, and is due as assigned in class. The purpose of the homework is to reinforce concepts introduced in class and provide an opportunity for the student to demonstrate their command of concepts. In working and presenting problems I encourage the student to make use of the following suggestions:

- Clearly identify the symbols you will be using to represent the variables of the problem.
- Remember that an “ = “ sign represents a relationship, namely that what is on one side of the = is equivalent to what is on the other side.
• Try to make clear the logic you are using to advance from one step of the solution to the next. Remember that your HW solution is the way for you to show that you understand the material. If you clearly present your solution and make an error along the way, you can still receive partial credit for all of the steps that it can be determined you performed correctly.
• For computational ease, work in terms of symbols until the final steps of your solution. Remember, each time you perform and write down an intermediate calculation you run the risk of misreading what you wrote down and entering an incorrect value into your calculator. I generally find that I do better using spreadsheet software to do calculations, since I don’t have to keep re-entering all the values for the entire calculation if I screw up along the way, but only the faulty value.
• Watch your units! It is usually best to make sure that all inputs and outputs are expressed in SI units.
• The final solution step should always be a reality check. Does your answer make sense? If it doesn’t, you probably did something wrong. A ridiculously wrong solution shows less understanding than a merely wrong solution.

Attendance Policy
University policy requires that class attendance records be kept. If you miss a class, for whatever reason, it is your responsibility to determine what, if any, work you have missed.

Make-Up Tests
If you miss one of the three scheduled tests for a valid reason, you need to get in touch with me as soon as possible to schedule a make-up test. Valid reasons include sickness, scheduling conflicts with work obligations, and family emergencies. If you know you are going to miss a scheduled test, it is your responsibility to notify the instructor as soon as possible so that alternate arrangements can be made. Missed pop quizzes cannot be made up for any reason except mandatory participation in official University activities, e.g., athletic or other University-sponsored reasons.

Accessibility and Accommodations
If you have a documented disability that will impact your work in this class, please contact me to discuss your needs. Additionally, you will need to register with the Counseling and Disability Services Office in Crooker Center. This office can be reached at (713) 525-6953 or 3162. If you will be taking tests at the Testing Center, please notify me as soon as possible of your scheduled time so that I will be able to make sure that a test will be waiting for you at the Testing Center.

Academic Dishonesty Policy
All students are subject to the university’s Policy on Academic Dishonesty and the UST Student Handbook. I expect any work that you turn in for credit in this class to be your own work, in your own words. I expect you to give proper credit, by citation, to any print or online resources that you use to fulfill class requirements. Exception – information from class notes and the class textbook do not need to be referenced for tests, pop quizzes, and homework assignments.
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<tr>
<th>Week</th>
<th><strong>Monday</strong></th>
<th><strong>Wednesday</strong></th>
<th><strong>Friday</strong></th>
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<td>01/16 Martin Luther King Holiday</td>
<td>01/18</td>
<td>01/20: <em>Syllabus, Intro, Ch 17 Sound Waves</em></td>
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<td>2</td>
<td>01/23: Ch17 Sound Waves</td>
<td>01/25: Ch18 Electric Charge and Electric Field (Lab Intro)</td>
<td>01/27: Ch18 Electric Charge and Electric Field</td>
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<td>3</td>
<td>01/30: Ch19 Electric Potential and Electric Field</td>
<td>02/01: Ch19 Electric Potential and Electric Field (Velocity of Sound Lab)</td>
<td>02/03: Ch20 Electric Current, Resistance, and Ohm's Law</td>
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<td>02/06: Ch20 Electric Current, Resistance, and Ohm's Law</td>
<td>02/08: Ch21 Circuits (Standing Waves on a String Lab)</td>
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<td>02/13: Ch21 Circuits</td>
<td>02/15: Ch21 Circuits REVIEW for Test #1 (Ohm's Law Lab)</td>
<td>02/17 Test #1 (Ch. 17-21)</td>
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<td>02/22: Ch22 Magnetism (Kirchhoff’s Rules Lab)</td>
<td>02/24: Ch22 Magnetism</td>
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<td>02/27: Ch23 Induction, AC Circuits,</td>
<td>03/01: Ch23 Induction, AC Circuits, (Oscilloscope Lab)</td>
<td>03/03: Ch23 Induction, AC Circuits,</td>
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<td>03/06: Ch25 Geometric Optics</td>
<td>03/08: Ch25 Geom. Optics REVIEW for Test #2 (RC Circuits Lab)</td>
<td>03/10: Test #2 (Ch22-23)</td>
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<td>03/13: SPRING BREAK</td>
<td>03/15: SPRING BREAK</td>
<td>03/17: SPRING BREAK</td>
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<td>03/20: Ch25 Geometric Optics</td>
<td>03/22: Ch25 Geom. Optics (Lenses Lab)</td>
<td>03/24: Ch27 Wave Optics</td>
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<td>03/27: Ch27 Wave Optics</td>
<td>03/29: Ch27 Wave Optics (Diffraction Grating Lab)</td>
<td>03/31 Ch24 Electromagnetic Waves</td>
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<td>04/03: Ch24 Electromagnetic Waves</td>
<td>04/05: Ch26 Vision and Optical Instruments REVIEW for Test #3 (Lab makeup)</td>
<td>04/07 Test #3 (Ch. 24,25,27)</td>
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<td>04/10: Ch26 Vision and Optical Instruments</td>
<td>04/12: Ch28 Special Relativity (No Lab – Holy Week)</td>
<td>04/14: GOOD FRIDAY (University Closed)</td>
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<td>04/17: Ch28 Special Relativity</td>
<td>04/19: Ch28 Special Relativity (Review for Lab Final)</td>
<td>04/21: Ch28 Special Relativity</td>
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<td>04/24: Ch29 Introduction to Quantum Physics</td>
<td>04/26: Ch29 Introduction to Quantum Physics (Lab Final)</td>
<td>04/28: Ch29 Introduction to Quantum Physics</td>
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<td>05/01: Ch30 Atomic Physics</td>
<td>05/03: Ch30 Atomic Physics</td>
<td>05/05: Last Day of Semester, Review for Final Exam</td>
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*The instructor reserves the right to make reasonable changes to the syllabus during the course. Any changes will be announced during class and/or emailed to the class.*