**PHY2060 Syllabus**

**Note: Final on Dec. 11 (Wednesday) at 5:30-7:30 pm is in FLG 260**

**PHY 2060 - Enriched Physics 1 - FALL 2013**

**Periods 4 & 5**

**INSTRUCTOR: G. R. Stewart, NPB2132, 352 392 9263, stewart@phys.ufl.edu**

**OFFICE HOURS**

MW period 7, NPB 2132, and by appointment.

**OVERVIEW**

PHY2060 is an introductory course in mechanics, covering aspects of kinematics and dynamics (both linear and rotational), conservation laws, harmonic motion, and special relativity.

**MEETINGS**

Tuesday, Thursday 10:40 pm - 12:35 am (periods 4+5), NPB 1002

**TEXTBOOK**

Resnick, Halliday, Krane: Physics, Volume 1 [5th Edition, Wiley, ISBN 978-0-471-32057-9].

**READING ASSIGNMENTS**

You are expected to read the material to be covered in each lecture before coming to the class. The lectures will cover a lot of material listed in the schedule, but they are not designed to be a substitute for the text. The lectures will consist mainly of illustrating concepts with experiments and demonstrations, discussing additional material omitted in the text, pointing out subtle points and common mistakes, and asking questions to find out and clarify misconceptions. The homework and exams will be based on materials covered in lectures as well as those listed in the schedule.

**EXPECTATIONS**

The course will cover a lot of novel material, and you should be prepared to invest a substantial amount of time. There will be a large number of conceptual questions in quizzes and exams, and memorization of problems will not help to earn a good grade.

**Further Content: Grading Method, Schedule of Lectures, Homework**

**Grading METHOD**

Grading will be based on an absolute point scale from 0 to 100. The letter grade assignment will be based on the students total point score. Points will be assigned for homework (max 10 points), quizzes/additional assignments at the whim of the instructor (max 10 points),  and exams (max 80 points). The conversion to letter grades will be done using the following conversion table after rounding the total number of points to zero decimal places.

|  |  |
| --- | --- |
| **Letter Grade** | **Point Range** |
|  |  |
| **A** | **≥ 85** |
|  |  |
| **A-** | **≥ 78** |
|  |  |
| **B+** | **≥ 71** |
|  |  |
| **B** | **≥ 65** |
|  |  |
| **B-** | **≥ 58** |
|  |  |
| **C+** | **≥ 51** |
|  |  |
| **C** | **≥ 45** |
|  |  |
| **C-** | **≥ 42** |
|  |  |
| **D+** | **≥ 38** |
|  |  |
| **D** | **≥ 35** |
|  |  |
| **D-** | **≥ 30** |
|  |  |
| **E** | **< 30** |
|  |  |

**HOMEWORK**

Homework is assigned weekly, and will be communicated in class via handouts or via reference to the 'News' section on our class web site. Cooperation on homework is permitted and discussion of problems among students is encouraged. The instructor will not solve homework problems until after the due date for the homework assignment, although you may pose questions and the instructor may give some cryptic hints. Each homework set carries a maximum score of 20 points. The final homework score is calculated as an average of all homework scores, dropping the 2 worst homeworks.

**QUIZZES**

On the Tuesday following every week in which there was material covered for the first five weeks of class (reason explained in class), a 15-min quiz will be administered in class. The material of the quiz will correspond to the material covered in the previous week. Each quiz will carry a maximum score of 20 points. The final quiz score is calculated as an average of all quiz scores, dropping the worst quiz.

**EXAMS**

In addition to the final exam, two other in-class exams will be administered. These will cover significant chunks of the class material. Each exam will carry a maximum score of 80 points. The final exam will also carry a maximum score of 80 points. The total score for exams will be computed based on the formula:

0.33\* [ E1 + E2 + F ]

where E1, E2, and F are the scores on the two 'midterm' exams and final, respectively.

**SCHEDULE OF LECTURES (tentative)**

The schedule below lists the topics planned for each lecture, cross-referenced to the text, as well as the date of each exam. This schedule is likely to evolve. It is your *responsibility* to be aware of any changes announced in class. (Many announcements will also be posted on the Web.)

|  |  |  |
| --- | --- | --- |
| **Lecture #** | **Date** | **Section# from Text** |
| **1** | 8/22 | **First class:** Motion in one dimension (Secs. 2-3 to 2-6) |
| **2** | 8/27 | Force and Newton's laws (Secs. 3-2 to 3-8) |
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|  |  |  |
| **3** | 8/29 | Reference frames and relative motion (Secs 3-2, 4-6), Projectile motion (Secs. 4-1, 4.3) |
|  |  |  |
|  |  |  |
| **4** | 9/03 | Projectile motion (Secs 4-3 and 4.4),  Uniform circular motion (Sec 4.5) |
|  |  |  |
|  |  |  |
| **5** | 9/05 | Uniform circular motion (Sec 4.5), |
| **6** | 9/10 | Tension, normal forces and frictional forces (Secs 5-2, 5-3) |
| **7** | 9/12 | Uniform circular motion (Sec 5-4), Linear momentum and impulse (Secs 6-2, 6-3) |
| **8** | 9/17 | Conservation of Momentum, One dimensional collisions (Secs 6-4, 6-5) |
| **9** | 9/19 | Many-particle Systems (Secs 7-3, 7-4) |
| **10** | 9/24 | Many-particle Systems (Secs 7-5, 7-6) |
|  |  |  |
| **11** | 9/26 | Rotational Kinematics (Secs 8-1 to 8-6) |
| **Exam 1** | 10/1 | Exam in class |
| **12** | 10/03 | Torque and Rotational Inertia (Secs 9-1 to 9-4) |
| **13** | 10/08 | Rotational Dynamics (Secs 9-5 to 9-8) |
| **14** | 10/10 | Conservation of Angular Momentum (Secs 10-1 to 10-5) |
| **15** | 10/15 | Work, Energy and Power (Secs 11-1 to 11-3), Work Done by a Variable Force (Sec 11-4) |
| **16** | 10/17 | The Work-Energy Theorem (Secs 11-6 to 11-8) |
| **17** | 10/22 | Potential Energy (Secs 12-1 to 12-5) |
| **18** | 10/24 | Conservation of Energy (Secs 13-1 to 13-5) |
| **19** | 10/29 | Gravitation (Secs 14-2 to 14-7) |
| **20** | 10/31 | Simple Harmonic Oscillations (Secs 17-1 to 17-4) |
| **21** | 11/05 | Review |
| **Exam 2** | 11/07 | In class exam |
| **22** | 11/12 | Real Harmonic Oscillations (Secs 17-5, 17-7 and 17-8) |
| **23** | 11/14 | Postulates of special relativity (Sec 20-2) |
| **24** | 11/19 | Time dilation and length contraction (Sec 20-3) |
|  | 11/21 | The Lorentz transformation (Secs 20-4 to 20-7) |
|  | 11/26 | Tuesday before Thanksgiving, Assignment to be discussed in class |
| **25** | 12/3 | Last Day of Class – Review for Final |
| **Final Exam** |  | * Section 3146, meets 4,5th periods: Wednesday Dec 11, 5:30-7:30 pm FLG (Florida Gym) 260 |

**Homework Assignments**

Homework assignments earn up to 10 of the total 100 points of the grade score. Homework assignments are given out each Tuesday during lecture (or available on Elearning Sakai) and are due the following Tuesday in class.  Homework grading will be done in such a way that two worst homework scores are ignored in the computation of the final score. Therefore, there will be no extensions or makeup homework assignments. The only exception is long-term illness which will be reviewed on a case by case basis.

**Homework Due Dates**

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| --- | --- | --- |
| **Set** | **Homework Subject** | **Due Date** |
| Homework 1 | Chap. 2 | Aug 27, 2011 |
| Homework 2 | Chaps. 2,3,4 | Sept 3, 2011 |
| Homework 3 | Chap. 4, Chap. 5 | Sep 10, 2011 |
| Homework 4 | And so on. | Sep 17, 2011 |

**Further important information:**

Students requesting classroom accommodation 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 when requesting accommodation.

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.

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor 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.” The Honor Code (http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor.

Phone numbers and contact sites for university counseling services and mental health services:http://www.counseling.ufl.edu/cwc/Default.aspx; 392-1575, University Police Department 392-1111 or 9-1-1 for emergencies.