

## PHYS 2513 — UNIVERSITY PHYSICS I (Spring 2010)

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| <b>Instructor</b> | <b>Dr. Cleo Bentley (P01)</b><br><b>Dr. Kevin Storr (P02)</b><br><b>Dr. Orion Ciftja (P03)</b> | <b>Office Hours</b>     |  |
| <b>Office</b>     | E.E. O'Banion Science Building, Suite 330  | <b>e-mail</b>           | <a href="mailto:clbentley@pvamu.edu">clbentley@pvamu.edu</a><br><a href="mailto:kastorr@pvamu.edu">kastorr@pvamu.edu</a><br><a href="mailto:ogciftja@pvamu.edu">ogciftja@pvamu.edu</a> |
| <b>Phone</b>      | 936-261- 3140  | <b>Time &amp; Place</b> | P01: TR 4 – 5:30 PM, Room 104<br>P02: MWF 9 -10 AM, Room 301<br>P03: MW 4:30 -6 PM; Room A104  |

### CATALOG DESCRIPTION

Credit 3 semester hours. A calculus-based general physics for science and engineering students, with topics primarily from mechanics, such as kinematics in one and two dimensions, Newton's laws of motion, Newton's Universal Gravitational law, work-energy, uniform circular motion, gravity, rotational kinematics and dynamics, and simple harmonic motion.

**PRE-REQUISITE:** MATH 1124 (Calculus I)

**TEXTBOOK:** *Physics for Scientists & Engineers, 4th Ed.*, by Douglas C. Giancoli, 2008 (Prentice Hall)

**COURSE GOALS:** To learn fundamental concepts in the field of mechanics applicable to engineers and scientists

**COURSE OUTCOMES:** Upon completion of this course, students should be able to demonstrate:

- facility with the physics concepts in the field of mechanics as measured by problem solving on exams
- familiarity with scientific & quantitative methods of thinking
- ability to apply calculus in a real-world physical setting

### COURSE POLICIES:

This course uses the lecture format. Selected material in each reading assignment will be covered in lecture. You should read the entire assigned chapter and work some of the problems before class. The lecture will not replace reading the material—the lecture will be to amplify and explain the material in the textbook. Homework problems will be assigned for each chapter covered. Quizzes may be given occasionally on covered material. It is expected that you will need to spend at least two hours studying outside the class for each hour spent in class. That means you should plan to devote a minimum of nine hours per week for this class. You should also be currently enrolled in a PHYS 2511 Laboratory.

### HOMEWORK AND GRADING

There will be up to four regular examinations during the semester and a final. Examinations will consist of solving quantitative physics problems. All examinations are closed book and the Final may be comprehensive. The use of calculators is permitted and encouraged. The Final will contribute about 35% of your final grade, and the three regular examinations combine will contribute about 45%. The remaining will be from attendance, quizzes and classroom discussion. Makeup examinations will be given ONLY for a university-approved absence.

The grading system is as follows: (90 – 100) A; ( 80 – 89) B; (70 – 79) C; ( 60 – 69) D; (0 – 59) F.

### Oral and Written Communications

Oral or Written communication will be exercised through exams, classroom and individual discussion, and use of e-mails.

### Attendance Policy:

Classes will start at the prescribed time and will end at the prescribed time. Class attendance is each student's individual responsibility. Excessive absences or tardiness may result in lowered grades. Excessive absenteeism, whether EXCUSED or UNEXCUSED, may result in a student's course grade being reduced or in assignment of a grade of "F". Absences are accumulated beginning with the first day of class. The University Undergraduate catalog (2002-2003, p.41) provides more detailed information.

**Grade of “T”:**

A grade of “T” may be given in cases of documented emergencies or tragedies that prohibit a student from completing a course. In order to receive a grade of “T”, approval must be granted by the Department Head and College Dean prior to the final examination time.

## COURSE OUTLINE

(Schedule Subject to Change)

| Week                | Topic   | Note  |
|---------------------|---|---|
| 1 (Jan 19 – 22)     | <b>Ch. 1: Introduction</b> , Measurement, Estimating;<br><b>Ch. 2: Describing Motion:</b> Kinematics in One Dimension | Late Registration & Drop/Add Ends on Jan 22 for Undergrad. & on Jan 23 for Graduate Students<br>No Classes Jan. 18, MLK Day |
| 2 (Jan 25 – 29)     | <b>Ch. 2:</b> (continued)   | Jan 27: General Student Assembly  |
| 3 (Feb 1 – 5)       | <b>Ch. 3: Kinematics in Two (&amp; Three) Dimensions:</b> Vectors   | Feb 3: Last day to withdraw from course w/o record  |
| 4 (Feb 8 – 12)      | <b>Ch. 3:</b> (continued)   | <b>Exam #1 (on Ch. 1-3)</b>   |
| 5 (Feb 15 – 19)     | <b>Ch. 4: Dynamics: Newton’s Laws of Motion</b>   |   |
| 6 (Feb 22 – 26)     | <b>Ch. 5: Newton’s Laws Applications:</b> Friction, Uniform Circular Motion   |   |
| 7 (Mar 1 – 5)       | <b>Ch. 6: Gravitation and Newton’s Synthesis</b>  |   |
| 8 (Mar 8 – 12)      | <b>Ch. 7: Work and Energy:</b> Kinetic Energy & Work-Energy Theorem   | <b>Exam #2 (on Ch. 4–6)</b>   |
| 9 (Mar 15 – 19)     | <b>Spring Break</b>   | <b>No Classes</b>   |
| 10 (Mar 22 – 26)    | <b>Ch. 8: Conservation of Energy:</b> Potential Energy  |   |
| 11 (Mar 29 – Apr 1) | <b>Ch. 9: Linear Momentum and Collisions:</b> Systems of Particles; Conservation of Momentum                          | <b>No Class on Apr 2 (Good Friday/Easter)</b>   |
| 12 (Apr 5 – 9)      | <b>Ch. 10: Rotational Motion about a Fixed Axis</b>   | <b>Exam #3 (on Ch. 7–9)</b><br>Apr 5: Last day to withdraw from course with “W”   |
| 13 (Apr 12 – 16)    | <b>Ch. 10:</b> (continued)  |   |
| 14 (Apr 19 – 23)    | <b>Ch. 11: General Rotation</b>   |   |
| 15 (Apr 26 – 30)    | <b>Ch 12: Static Equilibrium</b>  | <b>Exam #4 (on Ch. 10–12)</b>   |
| 16 (May 3 – 7)      | <b>Review Days—M &amp; T. Study Days—W &amp; R</b><br>Final Exams Start Friday, May 7                                 | <b>Final Exam: See Final Exam Schedule</b>  |
| 17 (May 10 – 12)    | <b>Final Exam Period Continued</b>  |   |

## University Rules and Procedures

### **Disability statement (See Student Handbook):**

Students with disabilities, including learning disabilities, who wish to request accommodations in class, should register with the Services for Students with Disabilities (SSD) early in the semester so that appropriate arrangements may be made. In accordance with federal laws, a student requesting special accommodations must provide documentation of their disability to the SSD coordinator.

### **Academic misconduct (See Student Handbook):**

You are expected to practice academic honesty in every aspect of this course and all other courses. Make sure you are familiar with your Student Handbook, especially the section on academic misconduct. Students who engage in academic misconduct are subject to university disciplinary procedures.

### **Forms of academic dishonesty:**

1. Cheating: deception in which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not mastered; giving or receiving aid unauthorized by the instructor on assignments or examinations.
2. Academic misconduct: tampering with grades or taking part in obtaining or distributing any part of a scheduled test.
3. Fabrication: use of invented information or falsified research.
4. Plagiarism: unacknowledged quotation and/or paraphrase of someone else's words, ideas, or data as one's own in work submitted for credit. Failure to identify information or essays from the Internet and submitting them as one's own work also constitutes plagiarism.

### **Nonacademic misconduct (See Student Handbook)**

The university respects the rights of instructors to teach and students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise. Campus behavior that interferes with either (1) the instructor's ability to conduct the class, (2) the inability of other students to profit from the instructional program, or (3) campus behavior that interferes with the rights of others will not be tolerated. An individual engaging in such disruptive behavior may be subject to disciplinary action. Such incidents will be adjudicated by the Dean of Students under nonacademic procedures.

### **Sexual misconduct (See Student Handbook):**

Sexual harassment of students and employers at Prairie View A&M University is unacceptable and will not be tolerated. Any member of the university community violating this policy will be subject to disciplinary action.

### **Attendance Policy:**

Prairie View A&M University requires regular class attendance. Excessive absences will result in lowered grades. Excessive absenteeism, whether excused or unexcused, may result in a student's course grade being reduced or in assignment of a grade of "F". Absences are accumulated beginning with the first day of class.

### **Student Academic Appeals Process**

Authority and responsibility for assigning grades to students rests with the faculty. However, in those instances where students believe that miscommunication, errors, or unfairness of any kind may have adversely affected the instructor's assessment of their academic performance, the student has a right to appeal by the procedure listed in the Undergraduate Catalog and by doing so within thirty days of receiving the grade or experiencing any other problematic academic event that prompted the complaint.