

## PHYS 2513 — UNIVERSITY PHYSICS I (FALL, 2008)

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|------------------|------------------------|-----------------------------|---|
| <b>Professor</b> | Fa-chung(Fred)<br>Wang | <b>Office<br/>Hours</b>     | MWF 11-12 noon; MTR 2 - 4<br>PM;<br>F: 1 - 2 PM   |
| <b>Office</b>    | New Sci. Bldg,<br>330E | <b>e-mail</b>               | fawang@pvamu.edu  |
| <b>Phone</b>     | 936-261- 3131          | <b>Time &amp;<br/>Place</b> | Sec.2: MWF 10 -11 AM,<br>Room 301; Sec. 1: MWF 12 -1<br>PM, Room 301;<br>Sec.3: TR, 4 -5:20 PM;<br>Room 103 |

### CATALOG DESCRIPTION

Credit 3 semester hours. A calculus based general physics for science and engineering students, with topics to include measurement, vectors, statics, dynamics, mechanical energy, momentum, circular motion, and selected topics from torque, moduli, Newton's universal Gravitational law.

**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 three regular examinations during the semester and a final. Examinations will consist of solving quantitative physics problems. All examinations are closed book and non-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 following minimum average scores will determine your grade: 80--A; 65 B; 50 C; 35 D; 0- 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.

**Grading/Class Related Appeals (Refer to Undergraduate Catalog, 2002-2003, p.39)**

## COURSE OUTLINE

| Week                 | Topic   | Note   |
|----------------------|---|--|
| 1 (Aug. 25 - 29)     | Ch. 1: Introduction, Measurement, Estimating;<br>Ch. 2: Describing Motion: Kinematics in One Dimension    | Late Registration & Drop/Add Ends on Aug. xx for Undergrad. & on Aug. xx for Graduate Students |
| 2 (Sept 1 - 5)       | Ch. 2: (Continued)  | Sept. 1, Monday is Labor day. No class   |
| 3 (Sept 8 - 12)      | Ch. 3: Kinematics in Two (& Three) Dimensions: Vectors  |  |
| 4 (Sept 15 - 19)     | Ch. 3: (Continued)<br>Ch. 4: Dynamics: Newton's Laws of Motion  |  |
| 5 (Sept 22 - 26)     | Exam #1 (on Ch. 1-3)<br>Ch. 4: (Continued)  | Exam. #1, Sept. 22/23  |
| 6 (Sept. 29 - Oct 3) | Ch. 5: Newton's Laws Applications: Friction, Uniform Circular Motion                                      |  |
| 7 (Oct. 6 - 10)      | Ch. 6: Gravitation and Newton's Synthesis<br>Ch. 7: Work and Energy: Kinetic Energy & Work-Energy Theorem |  |
| 8 (Oct. 13 - 17)     | Exam #2 (on Ch. 4-6)<br>Ch. 7: (Continued)  | Exam. #2, Oct. 15/16   |

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|-------------------|---|--|
| 9 (Oct. 20 – 24)  | <b>Ch. 8: Conservation of Energy:</b> Potential Energy  |  |
| 10 (Oct. 27 – 31) | <b>Ch. 9: Linear Momentum and Collisions:</b> Systems of Particles; Conservation of Momentum  |  |
| 11 (Nov.3 – 7)    | <b>Ch. 10: Rotational Motion about a Fixed Axis</b><br>Exam. 3 (on Ch. 7 – 9)                 |  |
| 12 (Nov.10 - 14)  | <b>Ch. 10: (Continued)</b><br>Exam #3: (on Ch. 7-9)   | <b>Exam. #3, Nov. 12/13</b>  |
| 13 (Nov. 17 – 21) | <b>Ch. 11: General Rotation</b>   |  |
| 14 (Nov. 24 – 28) | <b>Ch. 12: Static Equilibrium</b>   | <b>Nov. 27-28, 2008: Thanksgiving Holidays</b>                     |
| 15 (Dec. 1 – 5)   | <b>Review Days—M &amp; T. Study Days—W &amp; R</b><br>Final Exam. Starts Friday, Dec. 5, 2008 | <b>Common Final Exam* on Fri.<br/>Dec. 5, 2008, 6:30 – 8:30 PM</b> |
| 16 (Dec 8 – 12)   | <b>Final Exam Period Continued</b>  |  |

**\* This time period is set aside for COMMON FINAL EXAM. If you are scheduled to have another Final at this time, please inform the other instructor & me by 5 PM, Sept. 12, Friday.**