

- **TEXT:** *Principles of Physics* by Serway and Jewett, Volume 2, Fourth Edition, Harcourt College Publishers

- **Course Content:** In this second semester of general physics, the main topics will be thermodynamics, electromagnetism, optics, and, time permitting, selected topics in modern physics. Calculus will be used for the derivation of certain relationships. Mathematical relationships between physical observables are expressed algebraically so that knowledge of calculus beyond the MAT-1315 level is not required. Emphasis will be placed on the application of physical principles to the solution of practical problems. The methodology of problem solving will be stressed. The assigned problems represent a minimum of expected work. You are encouraged to try other problems. It is assumed that the student has a good working knowledge of algebra, trigonometry, geometry, and calculus. Those with inadequate background should arrange for an appointment with the instructor.

- **Academic Goals:** By the completion of this second semester of general physics you should have acquired an introductory knowledge of the topics mentioned in the previous section (thermodynamics etc.). In addition to further developing your problem-solving skills acquired in the first semester, you should be able to recognize and incorporate previously understood topics into the solution of current problems. This will enhance your ability to apply these skills to problems in other areas of science. *The analytical skills you develop in this course will have wide ranging application in your future professional development.* You may forget everything you learn in this physics course but hopefully you will retain the ability to deconstruct a problem, analyze what is given and what is unknown, then reconstruct the problem, and finally develop its solution. This is the methodology of rational, analytical problem solving and its importance for any practicing scientist cannot be underestimated.

- **Attendance and Responsibilities:** Regular attendance is essential if the student is to keep pace with the course. Students are encouraged to take notes and ask questions at any time during a regular lecture or recitation. They are urged to seek the instructor's help during the posted office hours, or at any other mutually convenient time. Physics is not an easy subject to learn, and *a few days of preparation just before a test will not be sufficient.* Students are expected to read the material in the textbook ahead of time and on a daily basis. It is virtually impossible to attain good grades by playing "catch-up physics" just prior to each test.

- **Academic Integrity:** Honesty is expected, and violations of the *University Policy on Academic Integrity* will be dealt with according to the procedures of this policy. This may result in failure of the course.

- **Examinations and Grading Policy:** There will be three tests given during the semester on the tentative dates below (2/13, 3/20 and 4/24). The exams will be given on Monday or Wednesday evening from 6:00 to 7:30 PM in M102. The lecture on the morning of the exam will be devoted to review. Each test is worth 100 points and the material listed for each test is tentative. The final exam will be cumulative and will count one-third of the final grade (150 points). *The make-up exam will be cumulative* and tentatively will be given on one of the Reading Days. The overall class average will determine the cutoff between a C⁺ and a B- grade and final grades will be determined accordingly. In grading, particular attention will be given to the work done and the evidence of the thought behind it. An isolated numerical answer, even if correct, or the mere transcription of a listed formula will not be credited.
A sheet listing equations given in the textbook for the chapters being covered will be provided with each set of exam questions. Numerical values of constants and conversion factors will also be provided. The student must know the meaning of the symbols since they will not be defined on this supplementary sheet.

- **Review Problems:** Samples of old tests will be emailed to you before each exam. It must be emphasized that the assigned homework problems are the basis upon which you are to build your problem-solving abilities. *The review problems represent more accurately the level of expectation for test questions.*

- **Tutors:** The times and location of the free tutorial sessions will be available in the Physics office (M347).
- **Office Hours:** Th 2:00 to 4:00 PM, and F 2:00 to 4:00 PM. Other times by appointment. My office is M 367C and my extension is 94885. *Please do not hesitate to see me if you are experiencing any difficulty!*
- **Performance Contract:** A *performance contract* is available upon request. You are not obliged to sign this contract. It is a formal agreement, freely entered into, which if fulfilled will guarantee that you will receive a *passing grade of at least a D* in this course. If you choose to enter into this agreement, you must return the signed contract to the instructor by Wednesday January 26, 2005.
- **Revised Lecture (L) and Recitation (R) Schedule**

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|-----------|----------|---------------------|---------------------|-----------|---------------------|------------------------------|--------|
| 1/18 | L16 | 2/13 | TEST 16 - 18 | 3/15 | L22 | 4/10 | L26 |
| 1/19 & 20 | R16 | 2/15 | L19 | 3/16 & 17 | R21 | 4/12 | L26 |
| 1/23 | L16 | 2/16 & 17 | R19 | 3/20 | TEST 2 19-21 | EASTER BREAK | |
| 1/25 | L17 | 2/20 | L19 | 3/22 | L22 | 4/19 | L26 |
| 1/26 & 27 | R16 & 17 | 2/22 | L20 | 3/23 & 24 | R22 | 4/20 & 21 | R26 |
| 1/30 | L17 | 2/23 & 24 | R19, 20 | 3/27 | L23 | 4/24 TEST 22,23,25,26 | |
| 2/1 | L18 | 2/27 | L20 | 3/29 | L23 | 4/26 | L15 |
| 2/2 & 3 | R17 & 18 | 3/1 | L21 | 3/30 & 31 | R23 | 4/27 & 28 | R15 |
| 2/6 | L18 | 3/2 & 3 | R20 & 21 | 4/3 | L25 | 5/1 | L15 |
| 2/8 | L18 | SPRING BREAK | | 4/5 | L26 | 5/3 | REVIEW |
| 2/9 & 10 | R18 | 3/13 | L21 | 4/6 & 7 | R25, 26 | FINAL EXAM | |

- **Problem Assignments:**

CH 15 - 7, 8, 15, 17, 19, 21, 25, 27, 28, 37, 50, 56; **CH 16** - 5, 16, 17, 19, 21, 23, 25, 29, 31, 47

CH 17 - 3, 5, 6, 9, 10, 11, 13, 15, 18, 19, 21, 22, 24, 25, 27, 29, 31, 32, 37, 39, 67; **CH 18** - 1, 3, 5, 7, 9, 10, 14, 15, 16, 18, 19, 20, 21, 23, 31, 33, 43, 46, 48, 51; **CH 19** - 5, 7, 9, 10, 11, 12, 13, 23, 25, 26, 27, 49, 50, 53;

CH 20 - 3, 5, 6, 7, 8, 10, 11, 12, 13, 15, 16, 18, 21, 33, 34, 41, 42, 43, 45, 48, 50, 64; **CH 21** - 9, 15, 17, 18, 23, 25, 27, 29, 30, 39, 40, 41, 46; **CH 22** - 1, 2, 3, 5, 8, 9, 13, 14, 16, 23, 27, 30, 31, 32, 33; **CH 23** - 1, 2, 3, 9, 10, 11, 23, 27, 30, 31, 33, 34, 35, 48; **CH 25** - 3, 13, 15, 25, 26, 35; **CH 26** - 8, 9, 11, 12, 13, 15, 22, 23, 25, 26, 28, 29, 33, 43, 44, 46, 52;

- **Recitations:** Students will be asked on a voluntary basis to do problems at the blackboard. A record will be kept of this and will be used to decide "border-line" cases in the determination of the final grade. Questions are welcome in both the lecture and the recitation. Physics is difficult so do not hesitate to seek assistance at any time. *Remember that these assigned problems from the text are the basis for the development of your problem-solving ability. The review problems will not be useful to you if you do not study these problems first.*

