General Physics 1

Credit: 5 credits

Time and Place:
- Lecture Sect 001 MWF 10:30 – 11:35 am Sci2950
- Lab 1 Sect 002 M 2:15 – 4:15 pm Sci4550
- Lab 2 Sect 003 T 8:00 – 10:00 am Sci4550
- Lab 3 Sect 004 T 2:00 – 4:00 pm Sci4550
- Lab 4 Sect 005 W 2:15 – 4:15 pm Sci4550

Instructor: Sylke Boyd, Asst. Prof.
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Office Hours: M 1:00-2:00 pm, W 9:00-10:30 am, Th 10:00-11:15 am, and after arrangement by e-mail

Course website: www.morris.umn.edu/~sboyd/Phys1101.htm
Required Texts: Young and Freedman, Sears and Zemansky’s University Physics, Vol 1, 12th Ed., Pearson – Addison/ Wesley (Mastering Physics is not required for class, but recommended as study aid)
Laboratory Manual for Phys 1101, University of Minnesota-Morris, Spring 2010 (available from instructor)

A pocket calculator with trigonometric functions and logarithms is needed.

Objectives: The course builds a solid foundation in the areas of Newtonian mechanics and provides an introduction to thermodynamics. Students will acquire skills in measurement, scientific inquiry and methods, the use of mathematical tools and problem solving. Chapters 1 through 20 of the text will be covered.

Requirements and Expectations: You should expect to spend at least 15 hours per week for work on this course. This includes 3 h in lecture, 2 hours in lab, and 10 hours in homework, reading and self-motivated studying. Each student is expected to complete homework, weekly quizzes, online assignments and three exams during the semester. Every lab experiment will require a pre-lab task and a lab report (details will be given in lab class).

My advice for success in this course includes the following:

1. Practice: practice problems, all of them, any of them. The book provides you with all sorts of challenges, from small quizzes interspersed into the chapter, to exercises, and challenge problems at the end of each chapter. You paid a lot of money for the book – so use it. The goal for you is to acquire the skill of analytical problem solving. As in any skill, practice is needed. Just as you do not learn to play the piano by watching a pianist play, you will not learn this skill only by attending lecture.
2. **Attendance**: Coming to class is very important. It provides you with explanations, experience and the possibility to ask questions. It familiarizes you with the material. It familiarizes the instructor with you. Attendance is the only way to keep up with this fast-paced course.

3. **Communication**: Work with your peers. Discuss difficult problems with each other. If you are forced to communicate your ideas, then they must crystalize in your mind. This helps you very often to gain clarity, or to figure out what your actual question is. In fact, academics often talk a lot. The reason lies in the power of words to help you organize your thought.

4. **Get Answers**: from your instructor, or from peers. Never fear to ask the questions. At the beginning of every step of progress (personally as well as for all of humankind) there is a question. Without questions, there is no progress. And: there are no stupid questions – all of them serve a purpose.

5. **Memorization**: The course will nearly never ask you to memorize anything by heart. But: there are certain things (rules, equations, skills) that form your toolbox. Without awareness of them you have no map. You will have no trouble keeping them in mind if you practice, practice, practice problem solving.

**Course webpage**: The course webpage is providing all information you need to stay organized. The course calendar contains all assignments, the current topics, labs and test dates. It will be updated regularly as the semester progresses. The Moodle site contains learning checks and online quizzes.

Web address: http://www.morris.umn.edu/~sboyd/Phys1101.htm

**Evaluation**:

Your grade will be composed to 50% of exams and final, 15% quizzes, 25% lab, 5% homework, 5% learning checks.

Please be aware of the University of Minnesota Grade Definitions:

- **A** -- achievement that is outstanding relative to the level necessary to meet course requirements. (>92%)
- **B** -- achievement that is significantly above the level necessary to meet course requirements. (82-88 %)
- **C** -- achievement that meets the course requirements in every respect. (72-78 %)
- **D** -- achievement that is worthy of credit even though it fails to meet fully the course requirements. (60-70%)
- **F** (or N) -- Represents failure (or no credit) and signifies that the work was either (1) completed but at a level of achievement that is not worthy of credit or (2) was not completed and there was no agreement between the instructor and the student that the student would be awarded an I (see also I) (<60%)
- **I** -- (Incomplete) Assigned at the discretion of the instructor when, due to extraordinary circumstances, e.g., hospitalization, a student is prevented from completing the work of the course on time. Requires a written agreement between instructor and student.

**Tests and Final** are scheduled during the semester, on Fridays: February 19, March 12, and April 23, from 10-30 – 11:35 in Sci2950. The comprehensive final exam is scheduled for Wednesday, May 12, 8:30-10:00 am in Sci2950. The test grades establish 50% of your course grade. If you can not be present for one of the exams, please arrange with me to take it early.
Quizzes: Twelve 10-min Quizzes will be given, usually on Friday. They will often make direct reference to a recommended problem. The first quiz is an online quiz and is attached to a survey, all other quizzes are held in class. Be prepared and bring your calculator. The quiz grade contributes 15% to the course grade. If you know you will not be present for a quiz, please let me know and take it early.

Lab: There are 12 lab experiments. Each lab requires the completion of a pre-lab assignment, as well as a lab report of varying expanse. Details will be given in the lab manual. Each lab is worth 30 points (usually 10 in pre-lab and 20 in lab report). The lab grade contributes 25% to your course grade.

Online Learning Checks: An online learning check will open after each lecture, and close at the beginning of the next lecture. The few questions in the learning check help you to keep up with the subject matter in a non-intimidating fashion, but also help me to identify trouble spots. Multiple attempts for each learning check question are possible, but it is rewarded to answer correctly the first time. You gather points by doing the learning checks, which constitute 5% of your course grade.

Homework problems: Two types of assigned problems are posted in the course calendar. Recommended problems are for learning and practice, and may appear on tests or quizzes. Homework problems are mandatory, and will be graded. They are due on Fridays. You can receive 2 points for a properly solved problem (this includes demonstration of intermediate steps), 1 point for a meaningful attempt, zero for everything else (including only the final answer). The homework grade establishes 5% of your course grade. Solutions for each type of problem will be posted in Moodle.

Reading Assignments: There is a reading assignment for each lecture, as indicated in the course calendar. A brief class room survey at the beginning of each lecture will refer to vocabulary or other important points from the reading assignment. Reading assignments are not graded, but are essential to be able to follow the lecture.

Students with special needs are encouraged to contact Disability Services. Every reasonable effort will be made to accommodate specials requirements in the class room.

Note at the end of the beginning: I would like to make this a successful semester for all of you. While this foremost requires your personal initiative and tenacity, please realize that learning is a process that will spring forth much more willingly if you help me to help you. Please don’t hesitate to drop by my office. I promise not to bite you, or at least not very hard.