**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
- Lab 5: Sect 006 T 11:00 am – 1:00 pm Sci4550
- Lab 6: Sect 007 W 8:00 – 10:00 am Sci4550

**Instructor:** Sylke Boyd, Assoc. Prof.

**Office:** Science Building, Room 2315

**Phone** 589-6315

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**Office Hours:** Monday 12:30 – 1:30, Tuesday 10-11 am, Friday 1:00 – 2:00 pm

Please consult my Google Calendar for other times.

**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:** Please 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. **Prepare** for each class by reading the assigned book chapter.

2. **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.

3. **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.

4. **Review:** The PALS program allows us for the first time to have a special review session for this course. It is voluntary, and will be a weekly recitation of the recommended practice problems.

5. **Communication:** Work with your peers. Discuss difficult problems with each other. If you are forced to communicate your ideas, then they must crystallize 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.

6. **Get Answers:** from your instructor, from your PAL tutor, 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.

7. **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. Letter grades correspond as follows: A (>92%), A-(90..92%), B+ (88..90%); B (82..88%); B- (80..82%); C+(78..80%); C (70..78%); C-(67..70%); D(55..67%); F (<55%).

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 17, March 9, and April 20, from 10-30 – 11:35 in Sci2950. The comprehensive final exam is scheduled for Thursday, May 10, 4:00-6:00 pm 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 before the exam date. Exception to this is sickness, evidenced by a note from UMM Health Services or a doctor; in that case arrange for a make-up within two weeks.

**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 before the quiz day. Exception to this is sickness, evidenced by a note from UMM Health Services or a doctor; in that case arrange for a make-up within two weeks.

**Lab**: There are 12 lab experiments. Each lab requires the completion of a pre-lab assignment, as well as a lab report. 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. Late lab reports will lose one half of their points each business day after the due date. If you need to miss a lab you can (a) arrange to join another lab section for that particular week, (b) use one of the two make-up labs in the second half of the semester. In either case, you must inform the instructor of your plans before the respective lab.

**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. No make-up is given for the learning checks.

**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. Solutions for each type of problem will be posted in Moodle. Maximum score for a problem is 5 points, as explained in the homework policy posted online. The homework grade establishes 5% of your course grade. Late homework loses half of its point with each business day after the due time.

**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.

**PALS program**: This is the first year we can offer a recitation session for this course. There will be a regular meeting in the evening, lead by an upper-level student, to review and support your learning in this course. The reviews will be based on the practice problems posted in the course calendar. Attendance is voluntary.

**Extra Credit**: There will be no extra-credit. This class has very many graded components. One can get a decent grade just by working consistently throughout the semester.
Academic honesty is a fundamental expectation to you. I expect that you

- Turn in your own work, even if you discuss problems with your peers.
- Do not use any sources other than the one’s you clearly reference.
- you clearly reference work that you draw from sources other than your own.

Examples for unethical behavior include identical assignments from different students, copies from internet or solution manuals, communicating with other students during tests or quizzes using any means (in particular electronic devices), and other things. The consequences for unethical behavior are: (1) an F in the assignment and a warning for the first infraction; (2) An F in the course and a report to the Dean’s office for the second infraction.

For further information, please refer to the Student Conduct code available under http://www1.umn.edu/regents/policies/academic/Student_Conduct_Code.pdf and to the homework grading policy linked on the course website.

Students with special needs need to contact Disability Services in the Academic Assistance Center, phone 6178. Every reasonable effort will be made to accommodate special requirements in the class room.

Class Notes and other materials provided by the instructor are subject to the following official policy: http://policy.umn.edu/Policies/Education/Education/CLASSNOTESSTUDENTS.html. I would like to add that you will receive various course-specific handouts, which are particularly covered under this policy.

More official UofM Policies can be found under the following references:
Legitimate absences http://policy.umn.edu/Policies/Education/Education/MAKEUPWORK.html
Electronic devices http://policy.umn.edu/Policies/Education/Education/CLASSROOMPED.html
Sexual Harassment http://www1.umn.edu/regents/policies/humanresources/SexHarassment.pdf
Equity and Diversity http://www1.umn.edu/regents/policies/administrative/Equity_Diversity EO AA.pdf
Academic Freedom http://www1.umn.edu/regents/policies/academic/Academic Freedom.pdf

Note at the end of the beginning:

I will do everything I can to make this a successful semester for you. I do expect a lot from you, but know that you can succeed. Stay organized – hopefully the course calendar will help with that.

Bring tenacity. Bring open-mindedness. Bring your questions. Use all the resources: PAL session, book, online materials, discussion forums, course calendar, office hours. Do not let grievances fester – let me know about them. I hope we will have a great semester