



United States Naval Academy
Physics Department
SP211 - General Physics 1
Fall 2013

Section 5522 (MWF5, T56 lab)

1 Objective

Demonstrate a practical understanding of the basic physical concepts of classical kinematics by: Methodically solving problems on paper, with computers, or in practice during physical demonstrations, laboratories, or real life experience.

2 Instructor

Dr. Chelsea MacLeod (Ph.D. Astronomy Univ. Washington, 2012)

Office: Chauvenet 022

Office phone: 410-293-6678

E-mail: macleod@usna.edu

Class website: <http://www.usna.edu/Users/physics/macleod/phys211.php>

3 Text

Halliday, Resnick and Walker, Fundamentals of Physics, Ninth Edition. John Wiley and Sons, Inc.

4 Grading

Your final grade will be calculated using the following percentages:

Homework	10%
Laboratories	10%
Quizzes	20%
Exams (3)	30%
Final Exam	30%

Letter grades are defined as normal: A > 90%, B > 80%, C > 70%, D > 60%

I reserve the right to adjust these guidelines by as much as 5% based on my judgment of your effort in this course.

Do not assume your current grade exempts you from applying yourself on an exam. *There is never an excuse for lack of effort.* The following applies to all sections of sp211: If you earn an F on the final, your instructor, independent of your numerical average calculated as outlined above, is free to assign a course grade lower than your 16 week grade.

5 Homework

You must demonstrate proficiency in technical subjects by applying your knowledge to solving problems. To support development of this skill, you will regularly submit homework via the Wiley Plus Web Site. Failure to turn in all assignments may result in my invoking discretion to lower your final grade based on lack of effort. Late assignments will be accepted, but at a 50% credit deduction. Excessive numbers of late assignments will affect my evaluation of your effort. The point of homework is not achieving a correct or incorrect answer. You should strive to refine your problem solving and reasoning skills. **Physics is more about why answers are right than the right answers themselves.**

Keep a homework notebook and discipline yourself to use the following problem solving method. Bring this notebook with you to every class, and to every EI session with me. I want to see how you are approaching the problems we work.

1. Read the problem. Reread it if necessary.
2. Write down the information that is “given.”
3. Write down what is to be “found.”
4. Draw a picture or sketch.
5. Write down the fundamental physical relationship necessary to solve your problem.
6. Perform the symbolic mathematics (algebra, trig, calculus).
7. Simultaneously, perform unit analysis.
8. Substitute the numbers given in the problem statement for the proper variables.
9. Box your final answer. Include units and remember significant digits.
10. Check that your answer makes sense.

It is necessary that you learn to solve problems independently. Copied solutions from web sites are of little value and are often dishonorably submitted as one’s own work. While solving problems in groups has definite advantages and is encouraged, remember that you will need to solve problems independently during exams and quizzes. An understanding of Physics is required to solve a problem with nothing other than a blank sheet of paper, your calculator, and your own brain. If you continuously rely on others to think for you, you will not succeed in this course or your Navy career.

6 Labs

Lab reports will be comprised of the prelab exercise, the completed excel spreadsheet and any graphs created during the lab. Only one report per group is required. Lab Reports are due at the end of our second weekly lab period.

Graphs are the pictures of laboratory work and are worth 1000 words. *A properly constructed graph must have the axes labeled, with units.* Do not play “connect the dots” with your data points. Instead, draw the best smooth curve through them. If the theory shows a linear relationship, draw a straight line and calculate the slope. Sometimes the slope is related to some physical parameter or constant we are trying to measure. Scale your axes so that the relevant behavior is visible. If the system never gets above 0.5 V, don’t let your y-axis range from -20 to 20 .

7 Exams and Quizzes

We will do frequent quizzes. Some of these may be group problem solving exercises, some will be individual, closed book efforts. Quizzes will be on both recent and less-recent material. Physics is a process that builds on what came before, not a collection of isolated facts. Three exams will be given during the semester. Exam problems will look like homework and quiz problems. *Show all the work necessary to justify your answer (including unit analysis) or you will not receive full credit.* The final exam will be multiple choice with an equation sheet.

8 Getting Help

Extra instruction (EI) is best obtained by appointment. You are welcome to drop by unannounced, but I reserve the right to be busy in that case. I expect you to have looked at the homework/labwork/quiz/exam and have some specific questions. Calls up to about 1700 are fine.

9 Conduct

- Act like what you will soon be, a junior officer in the United States Navy/Marine Corps.
- This is a hard class, and you will be required to work in order to pass. There is no excuse for lack of effort.
- Do not sleep in this class. Stand in the back of the room, or you will be stood in the back of the room.
- Do not use your phone or computer during this class.
- For head calls, simply leave quietly without disturbing the class and return immediately. Only one individual at a time during exams.
- Do not cheat. Ever. Evidence of cheating will be prosecuted to the fullest extent possible.
- I want to foster a team atmosphere in this class. If you finish a lab early, help out your classmates who are struggling. One of the best ways to learn a subject is to teach someone else. My goal is to see every one of you pass this course, and by working together, we will accomplish that.