

## Syllabus: Physics 221; Summer 2015

### Required Materials

1. *Integrating Multimedia Tools into University Physics Laboratories*, Vol. I (Physics 221 lab manual, orange cover, spiral bound), Summer 2015, distributed by the University Bookstore.
2. Calculator and a pen.

### Official Course Description

#### Physics 221 • General Physics Laboratory I (1 cr)

Prereq: Physics 211 or parallel or permission.

A course for students who desire a laboratory to accompany PHYS 211. Experiments in mechanics, heat, and wave motion. Lab fee required.

### Physics 221 Laboratory Objectives

1. Strengthen your understanding of and intuition for basic physics concepts in Measurements, Motion and Forces, Energy and Momentum, Rotational Motion, Waves, and Heat and Thermodynamics.
2. Develop your skills at collecting and analyzing data and formulating meaningful conclusions based on this data.
3. Utilize mathematical tools for data analysis and for comparing experimental data to theoretical predictions.
4. Enhance your ability to communicate results and ideas through scientific writing and graphical and functional representations.
5. Introduce you to various computer-based tools for studying in the sciences.
6. Practice your skills at working cooperatively within a team to achieve solutions to given problems.
7. Give you experience at relating physics concepts to real-world applications.

### Laboratory Requirements and Procedures

1. All work for this course will be completed in class during the scheduled lab times. You must submit your logbook to your instructor before you leave the lab. Late work will not be accepted. Your lab instructor will grade each lesson according to the *Grading Guidelines*.
2. Attendance at all laboratory meetings is mandatory. If you must be absent, try to arrange to do the experiment in another 221 section while the equipment is still available. You must receive permission to do a makeup from your lab instructor and/or the Lab Manager. There will be no make-ups available after the last lab of the day.
3. If you miss your lab due to an emergency and are unable to schedule a makeup, then you should prepare a **written statement** explaining the circumstances of your absence. Give this written statement to your lab instructor **by the start of the next lab period.** The instructor may take these circumstances into account when final grades are assigned.

4. You will be given occasional quizzes that will review the concepts covered in previous lessons. These will be given at the start of the lab period and will last about 20 minutes.
5. There will be no final exam given for this course.
6. If you have a question about a score given for a lab or quiz, you should discuss this with your lab instructor. Do not discuss personal grading issues during lab time. You should discuss concerns privately with your lab instructor at the end of lab or at a time outside of lab. If you feel a score is inappropriate, you should explain why, **in writing**, and give this written explanation to your lab instructor **within one week of when you received the score**. Scores will not be reconsidered after the one-week time has passed.
7. Having experience working successfully in teams is highly valued by the UNL engineering programs and is useful for all career goals. Therefore, part of the intention of the laboratory experience is to give you practice working with different people. You will be assigned different lab partners three times during the term.
8. In the workplace, supervisors do not usually use percentages or letter grades to rate your performance. Rather, they use a verbal score (like competent or marginal) and make comments. In order to help prepare you for future employment, we use the same type of system for the labs but then use a formula to turn your verbal score into a percent. Your quizzes will be graded based on points. See grading guidelines for more information.
9. Each group will submit one Group Lab Report. It is important that EACH group member participate in the experiment, but only ONE “scribe” should record data and answer questions in such a way that each group member is in agreement. At the end of lab, each group member must peruse the report and agree to its contents. No group member is allowed to leave until the lab report is agreeable to all group members.
10. The scribe for each experiment must be a different group member each lab. Every member of a group should be the scribe at least ONCE before the quiz. In the case that a group has all members having been a scribe in the previous experiment (during a group change), the TA will decide which student is the first scribe.
11. During quizzes, a group may share the group lab notebook to assist them in answering quiz questions, however they may NOT share answers from a group members quiz.
12. When you are the scribe, be sure to write neatly in your lab book and organize your work so that it is presented clearly. If the instructor can't read your work, then he/she doesn't have to grade it!
13. Your final lab score will be based on the quality of your lab work and written reports (85%) and quiz scores (15%). All quizzes and lessons will count towards your final lab score. **The group lab report will be the grade each group member receives for each experiment, so be sure to come to a group consensus in answers in your group lab report.**
14. The TA reserves the right to down grade any individual student's lab score if that student is not participating in the experiment and/or lab report answers.
15. When making up a lab, the student attending a different section is responsible for their OWN lab report. The make-up student will work in a group, but they must submit their

individual lab report to the make-up section TA. The regular instructor will grade the lab.

16. Clean up your work area and arrange the equipment neatly before leaving. Your station must be ready for the next students. Report any equipment problems to the instructor.
17. Any student caught copying another student's work or using lab reports from previous terms will automatically receive a zero for that experiment. In addition, the department chair will be notified for further possible action.
18. Students are expected to maintain a positive educational environment for all students as outlined in the Students Rights and Responsibilities section of the Undergraduate Bulletin.

- **Changes to Syllabus**

This syllabus is subject to change. Any changes will be approved by the Laboratory Manager and will be announced and posted in the laboratory room.

- **Laboratory Manager**

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