

Syllabus: Physics 223; Section 001 Spring, 2015

- **Official Course Description**

- Physics 223 • General Physics Laboratory III**

- (1 cr) Prereq: Physics 213 or parallel.

- Laboratory experiments in electromagnetic waves, subatomic and atomic particles, and radiation
Lab fee required.

- **Required Materials**

- 1. Pen

- **Recommended Materials**

- 1. Spare notebook for individual notes

- **Laboratory Objectives**

- 1. Strengthen your understanding of and intuition for basic physics concepts in Measurements, Electromagnetism, Physical optics, Atomic, Nuclear, and High-energy physics.
 - 2. Develop your skills at collecting and analyzing data and formulating meaningful conclusions based on this data.
 - 3. Utilize computational 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 representations. Gain experience at writing formal reports describing technical scientific work.
 - 5. Further develop your skills at using various computer-based tools for studying sciences.
 - 6. Practice your skills at working cooperatively within a group to achieve solutions to given problems.
 - 7. Give you experience at relating physics concepts to real-world applications.
 - 8. Obtain one hour of x-ray radiation safety training and three hours of use with an analytical x-ray machine.

- **Laboratory Requirements and Procedures**

- 1. Lesson reports are due to your instructor before you leave the lab each week unless your instructor informs you otherwise. Be sure to gauge your time in order to finish all necessary parts. You will not receive a grade for a lesson unless you submit your work to the instructor.
 - 2. Your laboratory instructor will grade each lab report according to the *Grading Guidelines*.
 - 3. In the workplace, supervisors don't generally use letter grades or percents to rate your performance. Typically, they use verbal scores and comments. To help prepare you for this, we

rate the labs in a similar fashion; then use a formula to turn the verbal scores into percents. See the grading guidelines section of this syllabus for more information.

4. If you have a question about a score given for a lesson or report, you must discuss this with your lab instructor. Please 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/email, and give this written explanation to your lab instructor within one week of when you received it. Scores will not be reconsidered or changed after the one-week deadline has passed.
5. Attendance at all laboratory meetings is mandatory. If you must be absent, discuss your situation (in person or through email) with your lab instructor immediately. If you think your absence may be excusable, then write an explanation of the situation and give it to your lab instructor within one week of missing lab. This explanation should be in writing/email. Your lab instructor may take this situation into account when assigning final grades at the end of the term.
6. You are expected to complete two formal lab reports during this semester. More details on the expectations for the formal lab reports appear later in this syllabus and will be given in class by your instructor.
7. There will be no final exam given for this course.
8. Having experience working successfully in teams is highly useful for scientific and technical 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 at least twice during the term.
9. 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!
10. 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.
11. You will choose a different "scribe" for the experimental report at least on a weekly basis. You may change scribes more often as directed by the lab instructor.
12. 223 lab students are encouraged to bring their own lab notebook to take notes while conducting the experiment. Only ONE group report will be graded, but students may take individual notes for their formal reports.
13. The group report grade will be the grade each group member receives for that experiment. As such, each group member must agree to the group report contents before the group report is submitted.
14. The lab instructor reserves the right lower an individual group member's grade if that group member is not fully participating.
15. Any student caught copying another student's work verbatim in a group report or using lab reports from previous terms will automatically receive a zero for that experiment. In addition, the Department Chair may be notified for further possible action.
16. Students are expected to maintain a positive educational environment for all students in this class as outlined in the Students Rights and Responsibilities section of the Undergraduate Bulletin.