

Physics 151L – 1102: General Physics Lab

Fall 2011

Syllabus

General Information

Instructor: Sameer Regmi

Email: sregmi@unr.edu

Office: LP 110

Mail box: LP Second Floor

Office hours: Monday 10AM-11AM

Lab meeting time: Tuesday 03:00PM – 05:00PM

Room: DMS 208, 210, or 212

Lab manuals webpage: <http://www.physics.unr.edu/LabsFall.html>

Class Description and Objectives

The purpose of the physics laboratory is to allow student to witness the concepts and physical laws that are introduced in lecture. You will also be exposed to elementary laboratory techniques. Every class will have a short lecture introducing the procedures, concepts, formulas and instructions relevant to the experiment. The lecture will also cover what is expected from you and how to write-up your lab-report. Please don't be late. Attendance and participation is expected. Experiments will be performed in groups however final lab-reports have to be written-up individually.

Course Requirements

Lab etiquette

- No FOOD/DRINKS/SMOKING/APPLYING of COSMETICS in the labs.
- Please turn off your cell phone.
- You and your partners must clean up and shut off equipment after you are finished with your lab. Failing to doing so can affect your grade.
- Please report all damaged equipment so it can be replaced.

Lab reports

- There will be 11 lab experiments during the semester. Only 10 of the 11 labs will be graded allowing the student to drop their lowest grade.
- You are expected to read the lab experiments before class and have a printed copy of the lab with you in the class. This will help you perform the experiment and can serve as your data sheet.
- You will be responsible to get your individual data sheet signed by the instructor before leaving the lab. This signature will be counted as attendance.
- Lab reports are due the following class period at the beginning of each class. Each student will turn in an individual report. A lab report which is one day late will have its grade docked 20%. The grade will be docked an additional 10% for each week the lab report is late.
- Lab reports that contain copied or plagiarized material will be given a zero. Lab reports for labs the student did not perform will be given a zero
- Typewritten lab reports are preferred, neatly hand-written lab reports are also accepted. Illegible lab reports are unacceptable.

- You can turn in graphs on graph paper or printed out. Hand-drawn graphs on anything other than graph papers are unacceptable.
- Please follow the given format for the lab write-ups. This format can be found at the lab manual website.

Attendance

You are required to attend all the classes. If you must miss a lab due to an excused absence (illness, emergency or pre-arranged absence), you should arrange to make up the lab during a different lab session that week (the week of your absence). You should contact both instructors before attending another lab section. No more than two labs can be done in other lab sections. By department rules, if you miss three or more classes you will receive a failing grade for the lab section. There is no way to make up the labs. Lab reports that are turned in for experiments which you did not attend/perform will not be graded. You are expected to be to class on time.

Laboratory safety

Experimental work can expose one to various kinds of hazards (electric shock, burns, cuts...), every person working in the laboratory should be situational aware of their surroundings so as to avoid possible injury. Be aware and reduce the risk of injury and/or damaging the equipment. Report any accident immediately.

Grading and total percentage of reports:

90 or above	A
80 – 89	B
70 – 79	C
60 – 69	D
Below 60	F

In borderline cases +/- grades can be assigned.

Disability Services: Any student wishing to apply for academic accommodations or adjustments is requested to inform the instructor, or contact the Disability Resource Center (DRC, Thompson, Suite 101, phone 784-6000) directly, as soon as possible to arrange appropriate actions. The DRC will be able to answer any questions regarding accommodations or adjustments.

Academic Success Services: Your student fees cover usage of the Math Center (784-443 or www.unr.edu/mathcenter/), Tutoring Center (784-6801 or www.unr.edu/tutoring/), and University Writing Center (784-6030 or www.unr.edu/writing_center). These centers support your classroom learning; it is your responsibility to take advantage of their services. Keep in mind that seeking help outside of class is the sign of a responsible and successful student.

Academic Integrity: All lab reports, homework, or exams must be your own work. Any act of plagiarism (cheating, piracy, theft, etc.) or otherwise obtaining grades under false pretenses constitute academic dishonesty according to the code of this university. Academic dishonesty will not be tolerated and penalties can include canceling a student's enrollment without a grade, giving an F for the course or for the assignment. For more details, see the UNR General Catalog.

Format of Lab Reports and Grading Fall 2011

Name:

Lab Partners Name:

Lab Section:

Date of Experiment:

Title of the Experiment

(1 point for having a title)

Abstract (5): A concise statement (a paragraph or two) that summarizes the objective, in your own words, and states the numerical results of the experiment, worth a total of 5 points.

1 point for having an abstract

2 points for summarizing objectives

2 points summarizing results

Theory (10): Summarize in your own words, the theory of the physics involved in the experiment. Also present the working equations, units and a schematic of the experimental apparatus. The theory sections should also outline the procedures used in the lab, worth a total of 10 points.

3 points for outlining procedures

2 points for outlining theory

2 points for diagramming setup

1 points for stating proper units

1 points for expressing relevant equations

1 points for defining and explaining relevant terms

Data (6): An orderly display of the data, preferably in tabular form. You must including the original data sheet signed by the TA. All entries should be clearly identified and include their proper units, worth a total of 8 points.

2 points for a data section

2 points for proper/clear labeling of data

2 points for proper units of data

Analysis (14/lab dependent): Must clearly show the computations used to reduce the data. First write the relevant equations then give a sample calculation. Be sure to include proper units and use the correct number of significant figures.

2 points for having an analysis section

2 points for displaying relevant formula

2 points for sample computation

2 points for proper units

2 points for significant figures

Graphs: 2 points proper units

2 points labeling axis

Results and conclusion (12):

A brief Summary of your results, stating the determined value or law, along with its numerical uncertainty. Use proper units and significant figures. For example, the experimental value for “g” was found to be:

$$\text{Acceleration of gravity } g = (9.8 \pm 0.2) \text{ m/s}^2$$

Frequently you will want to compare your result (F) with an accepted value (F₀). A good quantity to compute in this case is the “percent discrepancy” or the “Percent error” which is defined as:

$$\text{Percent - Discrepancy} = \frac{|F - F_0|}{F_0} \times 100\%$$

If you are comparing two values of “F” found in different ways (F₁ and F₂) find the “percent difference” given by:

$$\text{Percent - Difference} = \frac{|F_1 - F_2|}{F_M} \times 100\%$$

Where F_M is the mean of F₁ and F₂. Round off percent errors and differences to two significant figures. Discuss what you found and compare with what you had expected to find. Discuss any discrepancies. One may suggest ways in which to improve the experiment or reduce errors. Some labs may include questions, worth a total of 12 points.

2 points for having a results section

2 points stating determined value

2 points for stating uncertainty

2 points for having a discussion section

2 points for summarizing experiment and results

2 points for each question answered correctly

$$\text{Grade} = (\text{total points earned} / \text{total point available}) \times 100$$

Note: Your instructor will consider the above format important when grading your lab report. The following will be considered important in grading your reports (in addition to the physics):

1. Neatness
2. Composition
3. Grammar
4. Thought/Originality in presentation
5. Spelling

Bonus point will be given for finding and reporting errors in lab manual. Not all labs will conform exactly to the lab report format, given above. Some labs may not require a certain section of the lab format. While another lab may require an additional section be added to the write-up. For nonconforming labs, check with the instructor as to what they expect for a write up.