

PHY 1362 General Physics II Lab

Fall 2008

Class meetings: Tuesday 8.00 am–10:50 am at PHYS 2170

Instructor: Dr. Amitabh Joshi

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Office Hours: MWR 2.00 p.m. - 3.00 p.m. or by appointment

This is the laboratory course associated with PHY 1361, General Physics II, and must be taken in conjunction with the lecture course; however, it is a separate course from PHY 1361 and has a separate grade.

Book: *An Introduction to Error Analysis* by Taylor (2nd edition, 1997). The **Lab Manual** will be handed out during first lab meeting. Ask me if you didn't get one. By next week you will also need to get a blank quad ruled lab notebook, preferably spiral bound.

Please bring your Lab manual to the class. Always come prepared for the lab assignment before the Lab period. A good preparation for the Lab is essential to complete each lab smoothly.

Grading:	lab write-ups	85%
	Homework and quizzes	<u>15%</u>
		100%

The grading scale is A: 100%-90%, B: 89%–80%, C: 79%–70%, D: 69%–60%, F: below 60%.

Exams: There will be no exams in this class.

Labs: There will be about 12 labs during the semester. On the other weeks we will talk about error analysis. If you miss a laboratory for a legitimate reason, contact me as soon as possible.

You will usually do the labs in groups of 2, but each person should do their own write-up, in ink, in their lab notebooks. You should take turns taking data so you both learn how to do it. Each person should do their own calculations and write their own discussions, and not just copy them from their partner's lab book.

You will normally turn in your lab notebooks at the end of the lab period, and I will grade them and return them to you during the next lab period. If you take them home and don't get them to me at the appropriate time, I will take off points (10 pts out of 100 per week) for late labs turned in to me after I have already graded that lab. The maximum grade for labs turned in after 4 pm of the last class day (Dec. 9) is 70, and **no labs will be accepted after 4 pm on Friday, Dec. 12.**

On rare occasions students have done the lab but not done a write-up, or have skipped the lab but done a lab write-up using their partner's data. In either case, the maximum grade is 50 for that lab.

Here is a checklist of things to be included in each lab report:

- (1) title
- (2) date
- (3) yours and partner(s) names
- (4) introduction: background, theory, and purpose
- (5) procedure, usually including a diagram of the experimental setup
- (6) data, figures, etc.
- (7) error analysis: discussion and calculation of expected and actual error
- (8) conclusions: If there was an expected result, was it verified to within experimental error? What did you learn? What did the lab demonstrate?

Homework and quizzes: There will be some lecturing on the subject of error analysis, and homework will be assigned from Taylor. Homework will usually be due in class the week after we finish the material. I'll take off points (20% per class day) for late homework, and homework will not be accepted after I have returned them, which may be as early as the next class day. I also plan to start the semester with 1 or 2 quizzes to see how well people learned error analysis in 1352, and I may also give quizzes about the labs or lab techniques. A quiz will count the same as homework. I will drop your lowest homework or quiz grade.

Units: I take off points for wrong or missing units, so please be careful.

Tentative schedule of labs:

Week #	date	Lab
1	8/26/08	Coefficient of Linear Expansion
2	9/2	Mechanical Equivalent of Heat
3	9/9	Specific Heat Capacity of Metals
4	9/16	Heat of Fusion
5	9/23	no lab (error analysis lecture?)
6	9/30	Equipotentials and electric field Mapping
7	10/7	no lab (error analysis lecture?)
8	10/14	Electrochemical Calibration of an Ammeter
9	10/21	Measurement of Resistance
10	10/28	Properties of Series and Parallel Circuits
11	11/4	Ammeter-Voltmeter
12	11/11	Charge to Mass Ratio
13	11/18	Operation and Applications of the Oscilloscope I
14	12/2	Operation and Applications of the Oscilloscope II
15	12/9	AC Circuits