PHYS 132: Physics Laboratory 1

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TAs:

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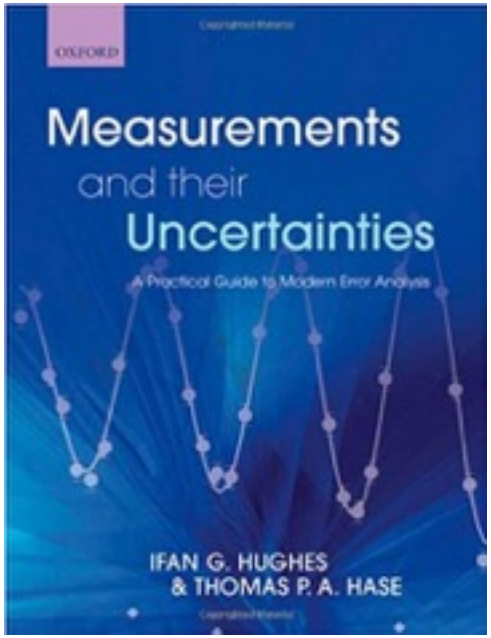
Text resources

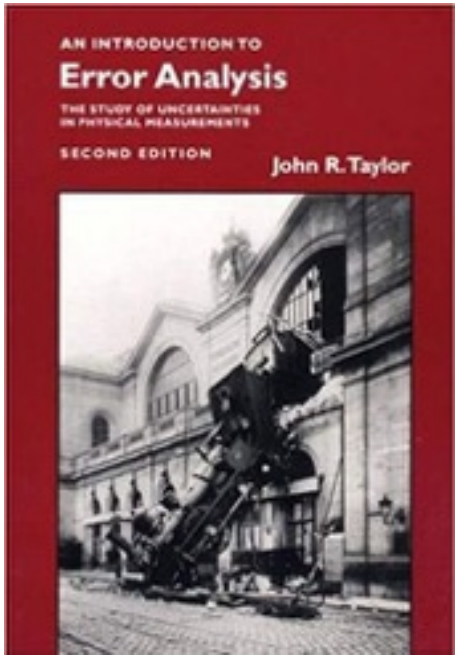
Recommended (used in later physics labs) :

Hughes and Hase



Other: Taylor

Older but still good text. You will see references to this text in notes.



PHYS 132: Physics Laboratory 1

- First in sequence of two lab courses: PHYS 132(1) & PHYS 133(1).

Tuesday, September 29, Lab 1	Density
Wednesday, September 30,	
Thursday, October 01,	
Tuesday, October 06, Lab 2	Kinematics
Wednesday, October 07,	
Thursday, October 08,	
Tuesday, October 13, Lab 3	Force vs a: ir
Wednesday, October 14,	
Thursday, October 15,	
Tuesday, October 20, Lab 4	Hooke's Law
Wednesday, October 21,	
Thursday, October 22,	

Tuesday, October 27, Lab 5	Harmonic Osc
Wednesday, October 28,	
Thursday, October 29,	
Tuesday, November 03, Lab 6	rotational moti
Wednesday, November 04,	
Thursday, November 05,	
Tuesday, November 10,	
Wednesday, November 11, Holiday	
Thursday, November 12,	
Tuesday, November 17, Lab 7	Simple Pendu
Wednesday, November 18,	
Thursday, November 19,	
Tuesday, November 24, Lab 8	Torsional Pen
Wednesday, November 25,	
Thursday, November 26,	

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- 8×3-hour labs plus 1 ‘makeup period’ at the end.

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- Lab notes and worksheets to be done by each student and uploaded to Canvas.

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- All course information and labscripts posted on (or accessed via) Canvas.

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- 8×3-hour labs plus 1 ‘makeup period’ at the end.
- Work individually
- Lab notes and worksheets to be done by each student and uploaded to Canvas.
- All course information and labscripts posted on (or accessed via) Canvas.
- Weekly prelab quiz on Canvas; deadline prior to lab session.

How the lab is run

- Each student takes all roles: Experimenter, Analyst, Recorder..

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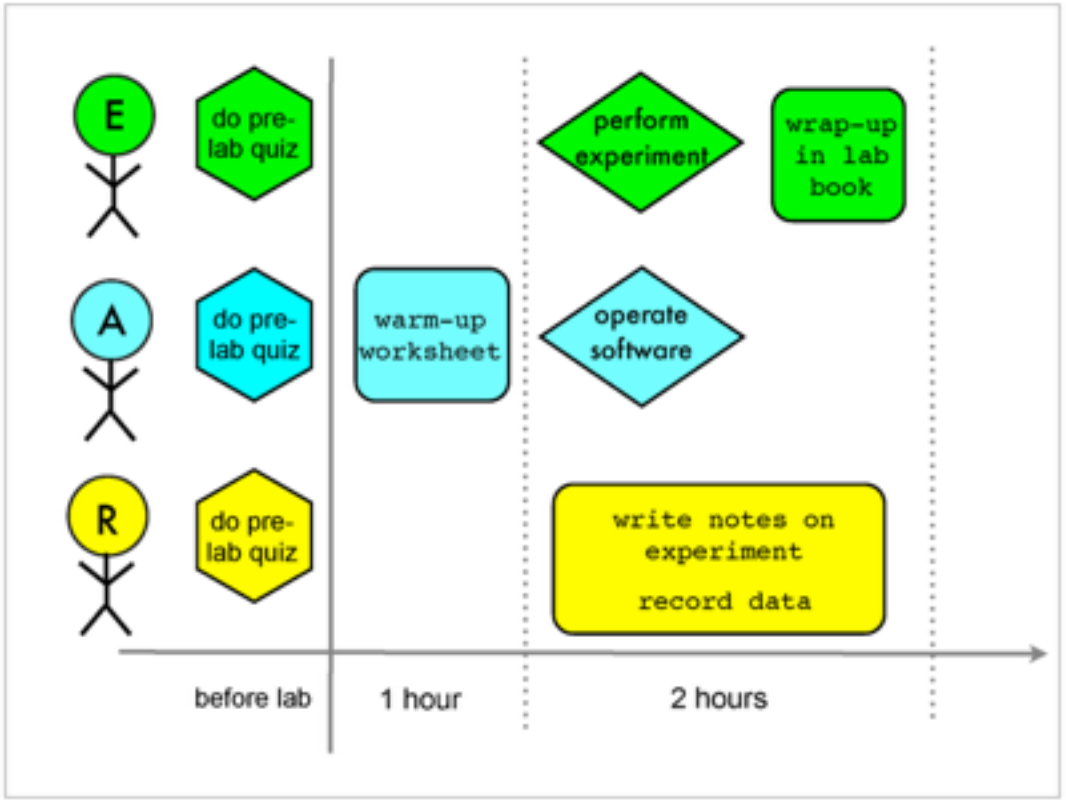
- Each student takes all roles: Experimenter, Analyst, Recorder..
- Warm-up Activity, Lab Experiment, Wrap-up.
- Lab Experiment: Explore/Estimate, Measure and Analyze, Refine Measurements, Wrap-up.



Attendance and Grading

- Must complete 7/8 labs to pass the course
- Grade: 10% pre-lab quizzes; 25% warm up, 75% Lab notes

What to do / expect for next week?

- Log on to Canvas and follow the links to the PHYS 132/133 wiki. This will be your primary reference throughout the course.
- Read the Script for Lab 1; this will list all of the other preparatory reading that needs to be done.
- Do the pre-lab quiz before the lab starts.
- I'll give a very brief introduction and then students work on the warm up and continue on working on the experiment.
- Warm-up is due at 4:30 pm on the day of the lab
- Lab notes due at midnight the next day

What to do ?

Warm-up

- Practice for some aspect of the lab that is going to be important.
- Don’t forget lessons learned during the warm-up as soon as you start working on the lab. They are there for a reason!

What to do ?

Estimate and Explore

- Estimate: not a measurement; just context; often no need to use any tools at all!
- Explore: what matters, and what doesn't ? How are you going to minimize uncertainties to get the best possible measurement?

Measurement and Analysis

- This is where you perform the best measurement you can based on the procedure worked out above, and derive an uncertainty to support your result.

Refinement

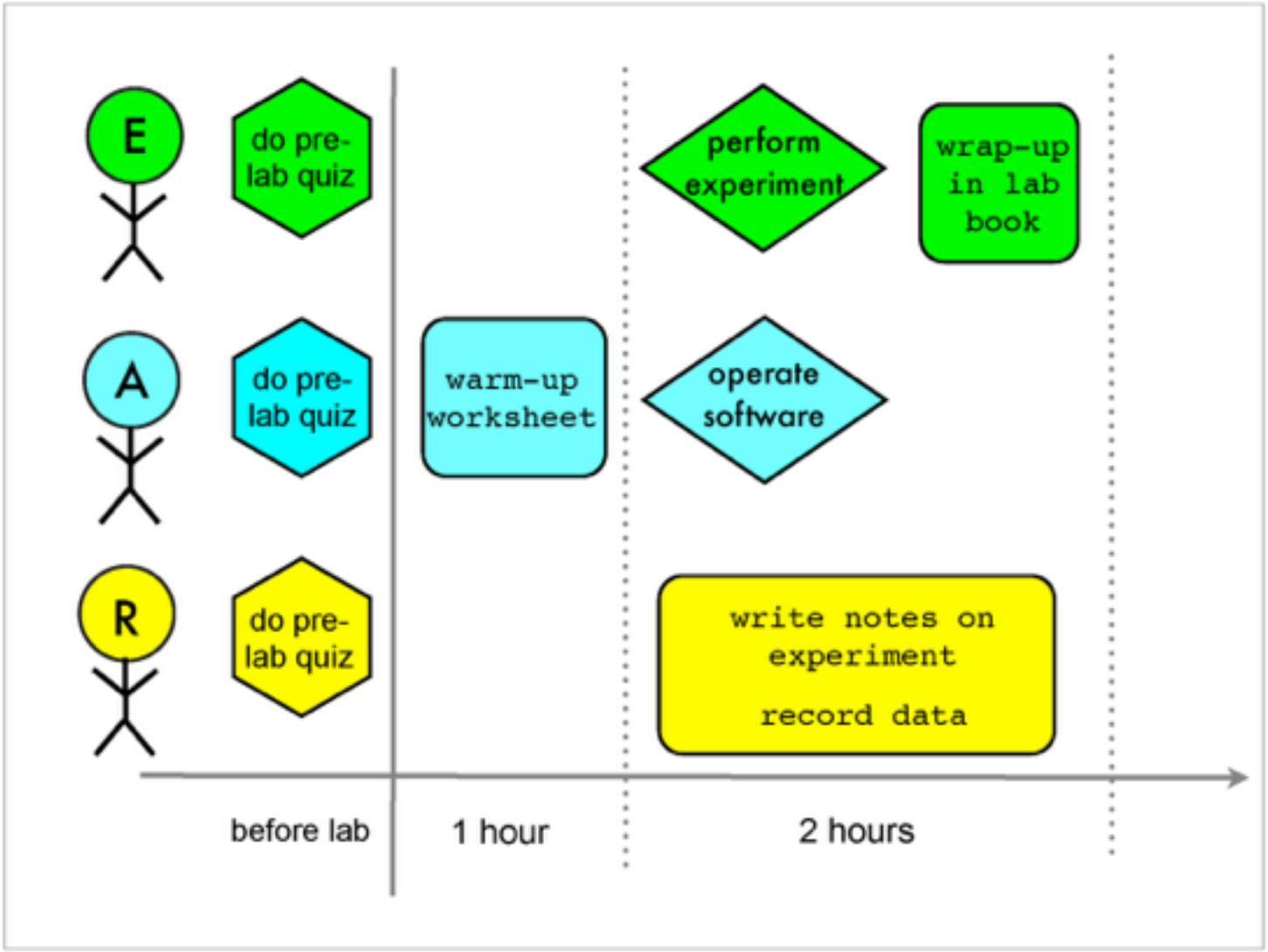
- It is almost always possible to do better; how can you improve your result? If something didn't work out as expected, do something about it!

What to do ?

Wrap-up

- A brief summary: What did you set out to do? What did you observe? What are you able to conclude? The questions are there to lead you through an assessment of your own work!
- Avoid writing vague statements like ‘Yes, it worked. We got 42 for an answer.’ No one else will understand what you mean. Provide enough context so that the reader doesn’t have to go back and read the question.

Activities



Sequence: Explore/Estimate, Measure and Analyze, Refine