



PHY131H1F – Fall 2008 Practicals Guide



Department of Physics

University of Toronto

Welcome! The Practicals part of your PHY131 course (also known as “labs”) will involve hands-on activities and team-work. My goals in designing these Practicals are to help you with the course material and to develop your laboratory skills, analysis techniques and communication skills. I hope you can have fun and achieve success!

Contacts (all emails end in @physics.utoronto.ca)

- **Practicals Coordinator:** Jason Harlow (me!)
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Office hours: 1:00 to 2:00 PM, Tuesdays during Fall 2008 semester.
“I am an astronomer, working in the Physics Department since 2004 as a Lecturer. I enjoy working with students and strive to choose and develop courseware and materials that enhance the student experience.”
- **Practicals Co-coordinator:** Vatche Deyirmenjjan
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- **Course Administrator:** April Seeley
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- **Practicals Technologists:** Larry Avramidis, Phil Scolieri, Rob Smidrovskis, Lilian Fan
Office: MP127.



Resources

The practicals documents as well as your course marks are available (or will be) at <http://portal.utoronto.ca> by following the link under your My Courses to [Fall-2008-PHY131H1F-LEC5101.LEC0101: Intro Physics I \(all\)](#). Information specific to the practicals be found by clicking on the Labs link in the side menu, or directly at

<http://www.physics.utoronto.ca/~jharlow/phy131labf08.html> .

Preparation

Practicals happen in MP126, in the North Wing of McLennan Physical Labs. The first practicals sessions are during the weeks of Sep.29 and Oct.6, 2008. Check the notices posted from time to time on the practicals web site. By Sep. 26 your group information should be posted on the U of T Portal site (portal.utoronto.ca). Your group information will also be posted on the bulletin board outside MP126.

You will not need to purchase a lab notebook. Lab notebooks will be shared by each team in order to reduce costs and paper waste.

Before you come to the practicals, you should obtain:

- A calculator: Choose one which accepts scientific notation, such as an EE or EXP button. It should also have buttons for computing SIN, COS and TAN.

- A good clear plastic ruler of at least 30 centimetres in length, a sharp pencil, and a writing pen. You do not, however, need a lab coat!

PHY131F Practicals Schedule Fall 2008

You attend the practical on the same weekday on alternate weeks

week #	Week of:	Mon 2 - 5	Tue 2 - 5	Wed 2 - 5	Thu 1 - 4	Fri 1 - 4	Wed (eve) 6 - 9	Sess #	Topics	
2	Sept 8	No practicals this week							Individual Study: Error Analysis	
1	Sept 15	No practicals this week							Individual Study: Error Analysis	
2	Sept 22	No practicals this week							Individual Study: Error Analysis	
1	Sept 29	P0101	P0201	P0301	P0401	P0501	-	1	Module A, Acceleration and Forces	
2	Oct 6	P0102	P0202	P0302	P0402	-	P5302		Module A	
1	Oct 13	<i>Holiday</i>	P0201	P0301	P0401	P0501	-	2	Module A <i>Oct 13 is a University Holiday</i>	
2	Oct 20	P0102	P0202	P0302	P0402	-	P5302		Module A	
1	Oct 27	P0101	P0201	P0301	P0401	P0501	-	3	Module B, Equilibrium and Oscillations	
2	Nov 3	P0102	P0202	P0302	P0402	-	P5302		Module B	
1	Nov 10	P0101	P0201	P0301	P0401	P0501	-	4	Module B	
2	Nov 17	P0102	P0202	P0302	P0402	-	P5302		Module B	
1	Nov 24	P0101								Module B, P0101 only this week.
2	Dec 1	No practicals this week								

Each section is divided into groups (with numbers like 1A, 2B, etc.), each containing about 16 to 20 students per group. Each group has a Graduate Student demonstrator who provides supervision, guidance, organization, and assistance throughout the semester. Although each demonstrator has a specific group responsibility, all of them are available, along with the practicals coordinators, to answer questions from any student in the practicals. You will meet your demonstrator on your first day of practicals.

You will meet four times through the semester according to the schedule for 3 hours each. To give you experience in team-building and working with your peers, you will be working in teams of 3 or 4. Your demonstrator and I will assign the teams, and possibly reassign the teams after the first experiment is finished. While it can be fun to choose your own teams based on who you

already know, I believe it is more valuable to your education and fairer in terms of grading if we assign the teams randomly.

Each team will share a single lab notebook, which will be given to you at the beginning of the first session. Your demonstrator will keep your lab notebook safe during the time between practical meetings. The lab notebook should have a unique name on the front, which will be your team name for the experiment you are beginning. Take some time to get to know other members of your team and their strengths. For each practicals session, one of you should be elected as the **Note-taker** (in charge of making sure everything gets recorded in the lab notebook) and another as the **Facilitator** (in charge of making sure the team stays on task, and in charge of seeking help when the team is stalled). The roles of Note-taker and Facilitator should change person every practicals session; all team members should have a chance to be both this semester.

A good lab notebook is a minute-by-minute record of your work in the practicals. It should contain everything you do, all of your rough calculations or preliminary measurements, full details of any error calculations, any comments, records of success or failure, etc., should appear in its pages. There is no point in copying information that is already contained in the guide sheets. Nor is there any point in writing elegant descriptions or detailed essays on your procedure. Note form is sufficient, as long as it is complete and comprehensible to your demonstrator and fairly describes what you are doing as you do it. Please be neat! Lab notebooks are marked, in part, on the basis of completeness.

Please do not write in pencil since it is not permanent. You should number and date each page. At the beginning of each experiment, you should write the title and purpose of the experiment, and the names of the students who were present in the team. Every student should sign the lab notebook at the end of every session and write a brief (at least one sentence) note describing part of what was learned during the session.

The Error Analysis Assignment

Available at <http://www.upscale.utoronto.ca/PVB/Harrison/ErrorAnalysis/index.html> . Please print out the 3 page Answer Form (available in PDF format as a link from the first page), and fill in the answers on this form. Put a staple through the 3-page assignment, and hand it to your demonstrator at the beginning of your second practicals session. Please be on time as you will be using what you learn from the Error Analysis Assignment in your experiments!

Appendix: The Rules and Regulations

Responding to emails: Professors and administrators will endeavour to respond to your emails within 2 days. If you do not receive a reply within this period, please resubmit your questions and/or phone (leave a message if necessary). Please note that some email programs outside utoronto.ca (such as hotmail) can be unreliable in both sending and receiving messages through the U of T firewall.

Procedures and Marking: Mark breakdown:

Error Analysis Assignment (individual), due second practicals session	2%
Module A: Session 1 and 2, first team	6%
Module B: Sessions 3 and 4, second team	6%
In-Lab Mark: individual assessment	6%
Total	20% of course mark.

Each activity within a Module will be marked on a four point scale, with **no** fractional marks. The marks are:

0. This is only for missing or totally unacceptable work.
1. This is for work that is seriously deficient and unacceptable.
2. This is for work that requires improvement. Considerable feedback on what improvement would be needed will be required.
3. This is the “standard” mark and indicates good work.
4. This is for exceptional work. No more than 10 – 15% of the students will receive this mark on any activity.

You are required to attend all sessions and will be penalized for unauthorized absences. The penalty will be a zero on the Module work done in the session you did not attend. All work in the practicals which is undertaken for credit must be done under the supervision of a practicals demonstrator. Your lab notebook must stay with your demonstrator when you leave the practicals.

In-Lab Mark

During each practicals session throughout the course, your demonstrator will be observing how you, as an individual, perform in the practicals on an ongoing basis. In arriving at this mark, your demonstrator will take into account your preparedness, the way you approach and organize your experimentation, your efficiency in planning and setting up the experiment, evidence of graceful handling of instruments and equipment, and your care in taking data. Also considered will be your ability to estimate errors (rather than calculating each one exactly), your ability to distinguish the essential from the inessential, the way you work with your team, your willingness to try something, to make a mistake, and to learn from it, and how often you seek advice and ask questions. The in-lab mark will be computed as a percentage out of 100, following the academic standards of U of T.

The Error Analysis Assignment

The 3-page Error Analysis assignment on the form provided is due to your demonstrator at the beginning of your second practicals session. The mark will be computed as a percentage out of 100, following the academic standards of the University of Toronto.

Late Error Analysis Assignments will be penalized at the rate of 10% per day of lateness. A fractional number of days will always be rounded *up* to the nearest integer, and the penalty will be applied as a percentage of the unpenalized mark. Assignments more than 10 days late will receive a zero.