Notes for First Year Physics Demonstrators

Semester 2, 2020

Welcome to first year Physics demonstrating! The following notes are designed as an aid to all demonstrators, they will be especially useful to people demonstrating for the first time and for experienced demonstrators retraining in a new laboratory.

KEY CONTACTS

- Jacinta Den Besten, Director of First Year Studies - jacinta.den@unimelb.edu.au (call 0425704916 in an emergency)
- Senior Teaching Fellows
    - Daniel Pyke, Cate MacQueen Physics 1 - daniel.pyke@unimelb.edu.au
    - James Richmond, Physics 1: Advanced - richmond@unimelb.edu.au
    - Emma Barnett, Marion Umbach, Foundations of Physics- emma.barnett@unimelb.edu.au
- Melaku Alemu, First year lab coordinator – melaku.alemu@unimelb.edu.au
- For general administrative inquiries, email fyl@ph.unimelb.edu.au

DUTIES

The Physics Labs are an integral part of the subject. Students often find them difficult and stressful initially, so it is your role to put them at ease and guide them through the first couple of weeks. Your primary goal is to teach the students the experimental skills they will need in Physics and scientific method. You are also there to help them understand the concepts they are exploring by asking leading questions to help them arrive at the correct answer. Your final role is to share your passion for Physics and provide a fun, safe atmosphere so the students can enjoy their time in the lab. The best way to effectively perform this role is to be prepared, get to know your class and enjoy working with the students.

Pre-labs

Students are expected to complete the online Pre-labs through the LMS subject page at least 10 minutes prior to the start of the lab.

Please check whether the students have completed the pre-labs in the first week to make sure they are aware of the online pre-labs and show them how to access them if they don't know.

Teaching in the Lab

The following list is intended as a guideline for how to run your lab classes, but not everything is necessary. Try things out and see what works; every class is different, as is every demonstrator.

First Lab of Semester

- Introduce yourself and encourage students to introduce themselves to one another.
- Show students around the lab. Tell them where the water fountain and toilets are, as well as the evacuation route (see below).
- Explain the pre-lab system and check that all students have completed their pre-labs on-line.
- Make sure all students have a copy of the subject handbook and a lab book for their reports. Emphasise that reports written in exercise books or on loose leaf paper are not acceptable.
- Give a brief explanation of what you expect from reports and how they should be marked (see below).

Before Every Lab

- Start the session with a quick summary of the experiments in the day's lab and a discussion of what you expect from the write-up. You may also comment on the previous reports in a general way, but do not single out individual students in front of the group.
- Provide a timeline for the students so they know what is expected of them, e.g., "You should have completed section A within the first hour".
- Check the condition of the lab before each session. Be sure it looks the same at the end of the session.

During the Lab

- The students have 2 ½ hours to complete the lab. In fairness to other groups, please do not go over this time. +/- 5mins is OK but should not be encouraged, except for students with special requirements. Remind students of the time remaining during the lab and give a 15 minute warning and suggest they conclude their report.
- Students should work in groups of 2-3. Try to avoid groups of 4 or more students, and for safety reasons students are not to work alone.

- Check regularly on all your groups during the lab to make sure they are making progress with the experiments. Ask questions and give everyone an opportunity to show their understanding to you. You are there to guide the students, do not just give them the answers.
- If you get a common question, bring everyone over to the board again to explain it to the group.
- Do not spend time on your phone. You should be checking on and talking to students throughout the lab, not waiting for them to come to you with problems.
- Let lab staff (Jude or Melaku) know as soon as equipment is found to be faulty/defective.
- Before reporting faulty/defective equipment, check that the mains and the equipment is switched on.
- Immediately report intentional misuse of lab equipment. (i.e. Shenanigans), and make a note of the student/s name and number.
- If you need to take a break, you can eat and drink in the tea room. Let your partner demonstrator know, and your break should not go for more than 10 minutes.
- Lab stools are to be pushed in under the lab bench at the end of every session.

Lab Log

Students are expected to complete their lab log in the blue Physics lab book only. Exercise books or loose leaf are not acceptable.
Students should write up their log as they do the experiment, and hand them in before 2 ½ hours have elapsed.
The students are NOT to take their lab books home to complete. Books must be left in the labs at all times.
The handbook contains a guideline for students to help write their log, but they will have (many) more questions about what is expected from them. Here are some notes you may find helpful in answering these questions

- The questions are a guide/prompt for what to comment on.
- Procedure can be an annotated diagram.
- Uncertainties should always be included.
- Error analysis may be developed in Advanced over the 8 labs for students who are excelling. Physics 1 students may do a rough estimate of errors through percentages (see lab manual). Foundations are not expected to do error analysis.
- Place emphasis on explaining and justifying their results in context.
- The summary should be a quick statement of results, new physics concepts should not be introduced in the summary.
- Students should develop the skill to suggest how they could improve the experiment
- Encourage students to write in dot points, use diagrams and tables to present their work.
- Encourage concise responses and discussions, emphasise they do not have to write a lot to get good marks.

- Foundations will be working to a Predict, Observe, Explain structure in their log. Encourage this by asking them as a group to predict what will happen before they perform the experiment.

Marking Logs

This year we are piloting a new marking schedule for the students to give you more time to make some of the reports - further details will be provided during the training session.

Mark logs by filling in the feedback sheet and marking according to the rubric attached below. The rubric has been developed with the intention of providing a fair and consistent experience for all students. It is also intended to make your job easier - the first two categories in the mark scheme should allow you to mark during the lab. Ensure that the completed mark sheet remains in the lab book so that we have a physical record of the marks. Additionally, enter the mark for the lab in the index sheet at the front of the lab book.

You are encouraged to just use the marksheet and refrain from writing in their books. If you wish to provide further feedback about the lab report generally, take a few minutes at the start of the next lab to point out common issues and make suggestions on what can be improved. Also give students an opportunity to ask questions at the start of the lab.
You are also able to email your lab group as a whole through the MES (see below), but you are not obligated to.

Some notes about marking –

- A mark of 5 is for exceptional work in all categories – this should be very hard to achieve.
- A mark of 0 corresponds to the elements not existing during the lab or in the report.
- Become familiar with the descriptors on the marksheet so you know what to look for.
- Let the students know that they should be demonstrating their understanding through talking with you, both asking questions and answering them.
- There is some flexibility in the marking scheme for you, we ask you to be consistent and be ready to justify your marks. The idea is the marksheet provides you much of that justification.
- We aim to average around 15/16 out of 20 for the semester. You can use the function in MES to look at the averages for all demonstrators to compare how you are going. We also do need a spread of marks. It should be rare to receive a 20/20 in a lab.
- You should expect students to improve throughout the 8 weeks as they learn the necessary skills.

Copying, Plagiarism and Collusion

Students work in groups and are marked on their teamwork. Students will collect data together and create graphs and tables together. The students MUST write an independent log using their own explanations and discussions of the experiment.

Students are subject to the Student Academic Integrity Policy (https://policy.unimelb.edu.au/MPF1310). If you suspect a student is copying another student, (colluding) or copying a report from a previous student (plagiarising) please report this immediately to Jacinta with the students involved and their student numbers (found on MES).

You may remind students as a group about the expectations of writing their own report, but DO NOT accuse students yourself. There is a process that must be followed as this is a serious offence.

Lab Replacements

If you are unable to attend your regular lab in a given week you are responsible for organising a replacement demonstrator. You can email the demonstrator group for your subject, or all the first year demonstrators if no one is available from your subject. If you find yourself unable to demonstrate at the last minute, or are running late, please call Jacinta as soon as possible. Please notify Melaku who and when you have made the swap. Only swap with someone already in your demonstrator group.

Exam Marking

First year physics exams are held in June. Expressions of interest for exam marking will be open close to the end of semester, though be aware that priority will be given to tutors and experienced demonstrators. If you are successful in applying for marking, you will be assigned a question or part of a question that you will mark for all the students taking the subject.

ONLINE RESOURCES

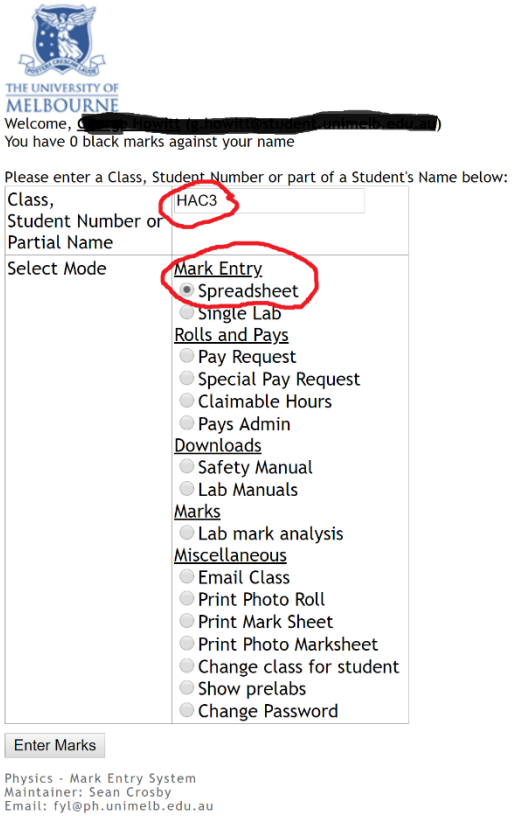
Mark Entry System (MES)

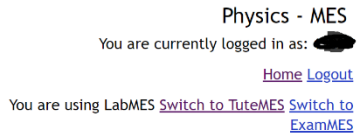
https://mes.ph.unimelb.edu.au is where to go to enter lab marks and get class and student information.

Initially to log in your username is your democode (Jacinta can provide you with this) and the password is your first name. You can change your password after your first login.

All marks for your labs should be entered in MES within one day. If you have students attending your class who are not on the class list you can enter their attendance in MES individually using their name or student number.

MES is also used to track the number of hours you have worked to claim on your timecard. More instructions on claiming pay are below.





Class codes

Your **lab group** will have a code like '**UAB2**'. The letters and numbers describe your group:
U is the *day*. **M** = **M**onday, **U** = T**u**esday, **W** = **W**ednesday, and **H** = T**h**ursday.
A is the *time* of day. **A** = **A**M (morning), **P** = **P**M (afternoon), and **E** = **E**vening.
B is the *subject*. A = PHYC10001 and **B = PHYC10003**, C = PHYC10009
2 is the group number, which tells you which section of the lab you will be working in. There are up to four groups doing the Physics 1 labs at the same time.

Themis

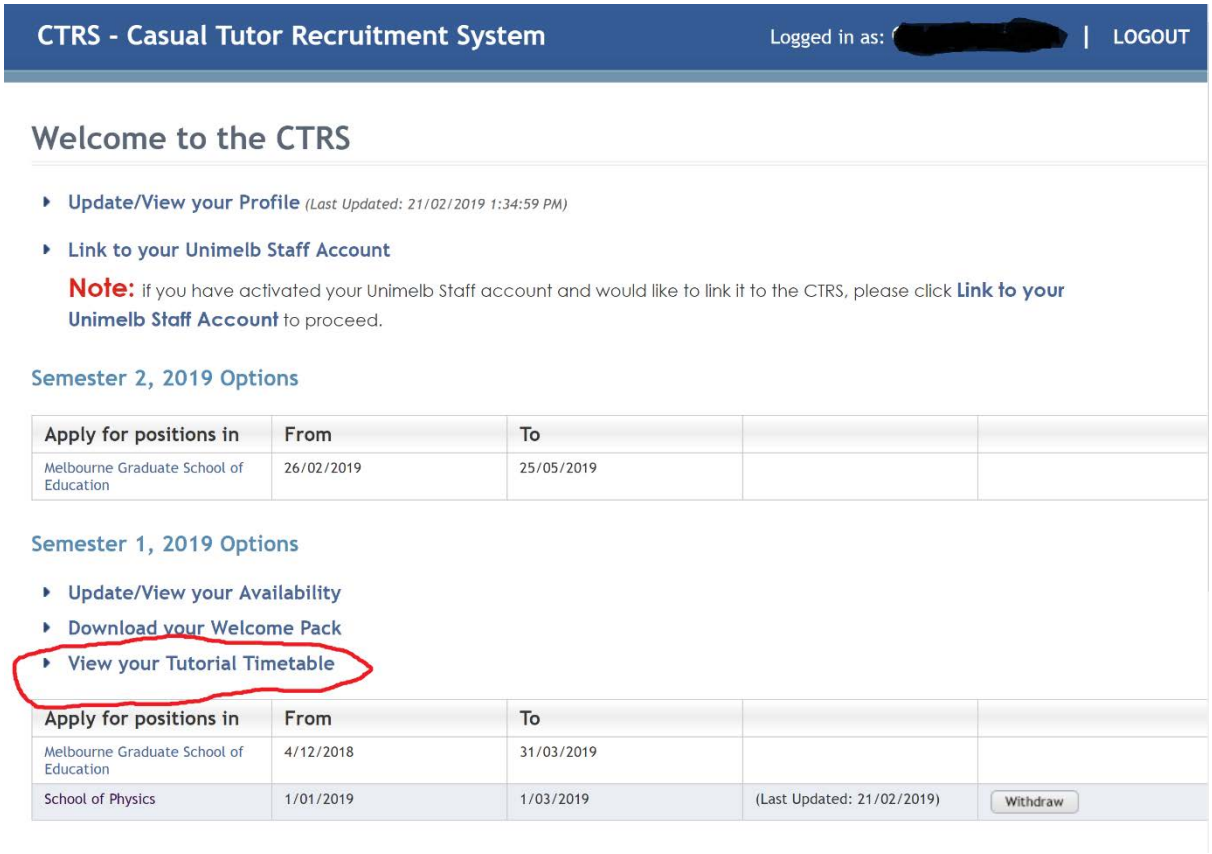
To get paid, you will need to fill in your casual timecards through Themis at https://themis.unimelb.edu.au log in using your staff account.

Please enter your time card in Themis as in the example below;

Hours Type	Payment Type	Job Performed	Approval ID	Casual Contract Ref	COY	BUDG	COST	PROJ	PUR	ACT	LOC	SAT, DEC 28	SUN, DEC 29	MON, DEC 30	TUE, DEC 31	WED, JAN 01	THU, JAN 02	FRI, JAN 03	SAT, JAN 04	SUN, JAN 05	MON, JAN 06	TUE, JAN 07	WED, JAN 08	THU, JAN 09	FRI, JAN 10	Total	Comments	Anticipated Payment
Casual Academic Support	Casual Academic Support - LevelA.2	Casual	Melaku Alemu, MR Melaku Alemu	Demon - CON0121777	1	6100	6	0	D01	11	1			3							3					6		$297

CTRS

You should have registered an account on CTRS as part of your application. Here you can view your classes and time table for the semester



Email

Demonstrating and pay-related emails will be sent to your staff email account. Make sure that it is activated and that you check it regularly. There are email lists for the demonstrators for each subject, they are

- Physics 1: Advanced – demo110@fyl.ph.unimelb.edu.au
- Physics 1:– demo130@fyl.ph.unimelb.edu.au
- Foundations of Physics – demo170@fyl.ph.unimelb.edu.au

Emails on these lists will also be sent to Jacinta and Melaku.

You can send emails to your classes through the MES. Emails sent via MES will be sent through your staff account and will also be received by Melaku and Jacinta.

Teaching policies

University HR policies are available at https://policy.unimelb.edu.au, some specific policies you should familarise yourself with are listed below.

ADMINISTRATION

Payment

Once you have entered your lab marks, click the button to add claimable hours. Each lab counts as three claimable hours. Additional hours (e.g. for lab training and demonstrator meetings) should be entered as "Special Pay Requests" in MES. You will then need to submit a time card through Themis. Make sure that the hours you enter into Themis and the "Claimable hours" on the MES match up each time you submit a time card. For first year teaching (NOT including exam marking), the codes to use in Themis are to come as will more detailed instructions.

CONDUCT AND OH&S

Evacuation

If the evacuation alarm sounds, you must evacuate the building immediately. The evacuation path from the 1st year labs is to go down the stairs at the back of the labs (where the toilets are), exit on the 2nd floor and go out the emergency exit to the ramp across Swanston St. See the evacuation map below. The Evacuation site is the green area outside Potters Cafe.

Lab Safety

It is your responsibility that the labs be kept in a safe condition for students and demonstrators. You should read and familiarise yourself with the full Laboratory Safety instructions, some key points of which are below

- Maintain a neat and clean bench and work area. Keep aisles and doors clear. Switch off and tidy up the equipment after use.
- Never run or throw objects in the laboratory. Do not adopt a casual attitude - be aware of the potential hazards and act accordingly.
- Never work alone in a laboratory - a colleague should always be within call.
- Adequate footwear and suitable clothing should be worn at all times in the laboratory. Students must leave the laboratory immediately if they are not wearing covered shoes.
- Eating, drinking and smoking in the laboratories is forbidden.
- After leaving the laboratory (especially Radiation), wash your hands thoroughly.
- All accidents, injuries, mishaps and "near misses" must be reported to Melaku immediately. This also includes breakages, faulty equipment, etc. If you are the cause of some mishap or accident, do not cover up, tell your demonstrator immediately: in doing so you may save injury to others.

Training

Before you begin teaching you must attend and complete both the Faculty of Science and the School of Physics demonstrator training sessions, as well as the School of Physics Safety Induction Session. You are also required to complete the online training modules

- Casual Employees Compliance Training
- Appropriate Workplace Behaviour

Working with Children Check

As part of the Child Safety Policy (https://policy.unimelb.edu.au/MPF1337), the University now requires that all staff, including casuals, who interact with undergraduate students have a valid Working with Children Check (WWCC). You can learn more about this policy and how to apply for a WWCC here https://staff.unimelb.edu.au/human-resources/working-with-children-check

Student Safety

Physics labs should be a safe space for students to learn free from discrimination, bullying or danger to their physical wellbeing. If you witness potential bullying or discriminatory behaviour you are unable to resolve on your own, or if you are concerned that a student is at risk, let Jacinta and the senior tutors and demonstrator know. If you are unsure what constitutes bullying and discrimination, you should familiarise yourself on the University's Student conduct policy (https://policy.unimelb.edu.au/MPF1324) and Appropriate Workplace Behaviour policy (https://policy.unimelb.edu.au/MPF1328).

If you believe that the physical conditions in a teaching space are unsafe for yourself or students please report to Jacinta immediately.

Sometimes our students are experiencing mental health issues, have learning difficulties or have a disability. If you have such a student or suspect a student's learning may be suffering because of a disability, the link below provides guides for Academics written by Students with Disabilities and provides many strategies for helping these students ensure they have a safe and equitable experience.

https://www.unimelb.edu.au/accessibility/guides

If you have concerns about a student you are welcome to refer them to Counselling and Psychological Services. Their website also has many useful resources.

https://services.unimelb.edu.au/counsel

Level 5, 757 Swanston St, Parkville, 83446927

Conduct around students

You should always act professionally around students, in line with the University's Appropriate Workplace Behaviour policy. Students are also bound by a code of conduct and any abuse, inappropriate sexual conduct or aggressive behaviour by students to demonstrators or peers should be reported to Jacinta. This includes aggressive language in e-mails.

Demonstrators should not enter relationships with students. This is a clear imbalance of power and the potential for a conflict of interest is high. If you are in a relationship with a student you must let Jacinta know as soon as possible so that you can be changed into a different subject. Failure to do so may result in severe penalties from the University.