Managing the Student Reports in Phy 1B03

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Background:

Each student in Phy 1B03 is required to do two reports over the course of the semester. The students work in groups of two or at most three. The report consists of a one-page writeup that is handed to the rest of the class and the professor, and a 5-10 minute oral presentation in class. The reports are worth a total of 12% of the final mark. These reports are designed to have the students apply the physics they are learning in class to the real world. They also have real benefits in that the students must design the experiment themselves, rather than following a recipe in the lab, and in the best cases they learn quite a lot about their topic, experimental design, and error analysis.

Students are also required to comment on other students reports using the web-based comment form MACE. These comments are designed to increase students' attention to the reports in class. The comments are worth 3% of the final mark.

Fitting the reports into the class:

It is my experience that each oral report takes about 10 minutes in total (including handing out the reports at the beginning and answering any questions at the end). With 40 students in the class, there are 40 reports to be scheduled over a term that has only 36 classes. In addition, no reports are scheduled during the first 4 classes and two classes may also be lost to writing midterms. Thus, you should expect to schedule of order 3-5 presentations per week. This means that there will be several classes in which you will have two presentations. It is possible to handle three presentations in a single class, but this should be avoided if at all possible.

The reports work the best when they are scheduled as closely as possible to the presentation of the material by the professor. For example, all the presentations on energy should be scheduled during the weeks in which energy is being discussed in class. There is some room for flexibility in the order of the topics in most chapters, and some report topics are less critical in their scheduling than others. For example, the topic "Work and the Baseball Pitcher" can be scheduled on the first day that work will be discussed, or later in the week. On the other hand, "Hooke's Law" needs to be scheduled on the day that Hooke's law will be discussed, so that the professor does not preempt what the students were going to say.

We currently have a list of 54 report topics (26 in the first half of the course and 28 in the second half) which work pretty well. Thus, the students have some choice of reports and not every report topic will be presented in every class. For planning purposes (to keep the reports in line with the material being covered in class), it is important for the professor to know in advance which reports the students which to present. Keeping the reports organized is probably the single most important thing you can do to making the overall class experience with the reports a positive one!

How to sign up students for reports:

At the start of the semester, I hand out the full list of report topics, the sample report and hints, and information on MACE (the web-based comment form). I tell the students that they will be working in pairs and that they will do one report in the first and one in the second half of the class. I tell them that it will be their responsibility to find a partner and to let me know which report topic they will be doing. Report topics are assigned on a first come-first served basis, so it is in their interest to sign up early. They can expect their report to be scheduled in the week in which the material is being covered in class, and I will given them an exact date at least one week before it is due. I also encourage people to sign up in the next day or so for a topic in Chapter 5 if they are interested in it, since those will be the first ones presented and I need to know soon if anyone wants those topics or not.

During the first week of classes, I remind them each day to sign up for a report and many of the students do so. If no one has signed up by the beginning of the first full week of classes for the topics in Chapter 5, I drop them from the list and assume they will not be done. As the semester goes on, I remind them periodically to sign up if they have not already done so. As we approach the end of the first half (fluids), I tell those people who have not yet signed up that they must do so immediately, and generally they comply. Around that time I also let them begin to sign up for topics in the second half of the course, and similarly towards the end of the semester I issue dire warning that they must sign up for the remaining topics.

To keep track of who has signed up for which topic, I carry a copy of the report list to every class, so it is always available for students to sign up. I also put the list of reports on the web page, and have noted when reports were taken and also listed the dates they were due to be presented (see below).

The class membership is fluctuating quite a lot in the first 1-2 weeks of classes. This is why our first report topics are from the very end of Chapter 5, and would likely be presented in the 5th class of the semester. If you try to schedule reports too soon, you will invariably find that one of the partners has dropped the class or switched sections in the meantime.

How to manage the report dates:

To manage the report dates, you need to have an idea of what you are going to be teaching two weeks before you actually teach it. This is going to be easiest to explain with a specific example.

My classes meet on Mondays, Wednesdays, and Thursdays. Suppose on Friday, October 13, I see that I have just finished up fluids (Ch. 15), and will start Simple Harmonic Motion next week. That means that in 10 days (on Monday, October 23) I will be starting Waves (Ch. 16). Therefore, I have to assign dates for the presentation in Waves. I look at my signup list and see that teams have signed up for both topics in waves. I look at the course material and see that I have quite a lot of introductory exercises I want to do with the students. I therefore assign "Speed of waves on strings" to Wednesday, October 25, and "Speed of waves in deep/shallow water" to Thursday, October 26. Then, when I go into class on Monday, October 16, I announce those two presentation dates. I also add them to the class web page, in case the students doing the presentations were not in class.

To summarize, in the first class of each week, I assign specific dates for the reports that will be presented in the FOLLOWING week.

As we go along through the semester, I cross off report topics for which the material has already been covered in class. So, in the example above, if someone had come to me on Thursday, October 12 and wanted to sign up for a report in fluids, I would have not allowed them to. On the other hand, if they had wanted to sign up for a remaining topic in Simple Harmonic Motion, I would have checked at that time to make sure they could present on Thursday October 17 and that there were not two reports already scheduled for that date. If both those conditions were met, I would have signed them up. Alternatively, I could sign them up for Monday, October 23, thinking that I might not quite finish SHM in one week.

Again, the key points here are making sure the report topics stay aligned with the other material discussed in class, and making sure the students have one week advance notice of the exact date they will present their report.

Marking the reports:

I try to mark the reports fairly soon after I have received them and hand them back promptly. This gives the students rapid feedback (especially important in the first report, since they will have to do another one). I make a copy of the report and write detailed comments and the grade on the copy I will hand back to the student, and just the grade on the copy, which I shove in a folder to have a TA enter all the marks at a later date. I find it takes about 10-15 minutes to mark a single report. The marking scheme I use is 4 marks for the Key points, 2 marks for everyday examples, 5 marks for the measurement, 2 marks for the uncertainty discussion, and 2 marks for the oral presentation.

It is good to ask the students to bring in something in their oral presentation which demonstrates that they actually did what they say they did (rather than copying a report from someone else or just making up data). I didn't require this to get full marks, but many students did bring in demos or parts of their equipment, which help make the oral presentation more lively.