

Heading:

Your name: Madhurima Nath

Field site: Office Hours, ROB 108

Instructor(s): GTAs - Rathara Herath and Arian

Date: Tuesday, 09/13/2016

Time of observations: 12-1pm

Number of students present: 1

Topics covered: Homework on Newton's laws and some lab questions.

#### General Observation:

The room looked peaceful. I was wondering if I would be able to answer the questions in the right way since it was after almost an year that I was doing office hours. There were only two students and two GTAs. It was lunch time, so I was expecting less number of students, but two students seemed really low. The room was otherwise empty. All the 4 people (GTAs and the students) were on the same table. The students seemed to understand what the GTAs were saying, so I let them continue. One of the students left after 20 minutes. He seemed calm and liked to work alone. After he got his questions answered, he preferred going to a separate table and working on his own. Once he left, that left 4 of us in the room, 3 graduate students and 1 undergrad. She seemed overwhelmed with so many graduate students around. By the end of the hour, it was only the graduate students. We discussed some common questions.

#### Narrative Description:

The GTAs had office hours from 11AM, and they were already helping the two students, so I let them continue with their explanation. I didn't get to teach much in the first 20 minutes or so. They seemed more comfortable seeing familiar faces. One of the TAs present was also the TA for the lab and that made the students more comfortable to ask him the questions. I had interactions with only one student. No students came in for the last 15 minutes and it was mainly the 3 of us. I ended up asking the TAs what kinds of questions they got in the previous hour and the previous weeks. We ended up discussing about the common misconceptions that students usually have when they come in for labs and questions in their homework. I tried to help in couple of questions, but they really seemed more confident in answering their homework questions when the explanation came from the GTAs rather than me.

The student I ended up helping had some some questions regarding the position - time and velocity - time graphs. It was a little difficult to understand the difference between a linear increase in velocity and an accelerated motion. Although it is easy to notice a linear and a non-linear plot, yet, she seemed more confident in calling the non-linear plot as exponential behavior rather than a parabolic one. She also had some questions regarding how to choose the independent and dependent variables when making a plot in the lab.

#### Reflection:

I think this session was not that difficult. There were a lot of GTAs to help one student. One thing that was very evident (from my past experiences as well) is that students have no clue which equation to use for which problem. They write down all the equations and look for help. I feel that is because they do not know how to approach the problem. Also, they have a hard time relating the concepts or equations to the graphical picture. I agree that initially the idea about dependent and independent variables is difficult, but I think they need to practice more and they have to be given more instances so that they can intuitively understand which quantity changes and which one is responsible for the change and which one is constant.

Field site: Office Hours, ROB 108

Instructor(s): GTAs - Donnavan, Riya Nandi and Adbhut Gupta

Date: Friday, 09/23/2016

Time of observations: 11.30 - 12.30pm

Number of students present: 6

Topics covered: Waves and acoustics

#### General Observation:

The room looked peaceful. I knew there would be more number of students since they had their tests today. There was only one GTA when I went in at 11.30am. Later the other two came in. There was 4 students initially, and later few more came in. I saw the GTA present helping some students on one table and the other student seemed to be working alone. A student came in and asked to help her solving problems on waves and sound and Doppler effects. I helped her almost for the whole hour. By the time I was leaving there were few more students who had come in and there were 2 more GTAs. Overall, this week was more productive for me than the last week.

#### Narrative Description:

When I entered, there were 3 students discussing some problems with a GTA on one table. There was one more student, sitting on a different table, seemed to work on his own. As I was settling down, a student came in and asked if I could help her. So I started helping her. She had questions on sound waves and Doppler effects. I decided to help her by asking open ended questions. We solved some question on constructive and destructive interference. She had all the equations written in her notes, but she didn't realize how she could use those equations to solve the problems. Next we did some problems for Doppler effects. I suggested her to first figure out which was the source and the listener and which of them or both were moving. Once those were set, she seemed to know how to solve the problems. Lastly, we did some problems on open-open, open-closed pipes. Drawing figures of how the length of the instrument/pipe is related to the wavelength of the sound waves made the concept much clear. She said she understood what those equations actually meant. Again, in this case, I noticed that she didn't know which

equations go with which case and she gave me all the equations that she found in her notes. By the end of the hour, she seemed to have an idea which equations to use for which problem.

#### Reflection:

This was a good session. I felt that I helped that student. I used open questions and helped her solve the problems on her own. I really hope that she felt that I helped. I feel that one of the major problems is that they know all the equations and they kind of know what the question is related to, but they don't know how to approach the problem and use the correct set of equations for a particular problem, if it is not straight-forward. I saw that there were a couple of conceptual questions that she needed to solve. I feel that such questions help a lot.

Field site: Office Hours, ROB 108

Instructor(s): GTAs - Donnavan, Riya Nandi and Adbhut Gupta

Date: Friday, 09/30/2016

Time of observations: 11.30 - 1pm

Number of students present: 9

Topics covered: Electric fields

#### General Observation:

The room was quiet. Same as the previous week, there was one GTA at 11.30am and the rest two came in later. There were 3 students and more came in afterwards. The initial 3 students were working alone and the GTA was helping one of them when I came in the room. Few more GTAs came in as well. Most of the questions were on electric field calculations. Very few of them were asking questions on kinematics. I helped one student with her homework on electric fields. There were a lot more students than the previous weeks. Overall, the session started slow but it became a busy one by the end. It was a good experience.

#### Narrative Description:

As I entered the room, one of the GTAs was helping a student on a problem on dipole. The other two didn't want any help and preferred working on their own. They were all sitting separately. The two students that came in later were working together, but they didn't want our help. The students who turned up after few minutes had a lot of questions, mainly on the calculation of electric fields for different cases. She knew what all formulae to use. She had done most of the problems correctly. She just needed some assurance that she is proceeding in the right way. We did problems on finding out the electric fields on a bar of a certain length and discs. She was unsure about how to find the direction of the resultant electric fields. We did some vector addition for that. However, there was a problem on two circular discs at a distance which took us a little more time because we forgot to take into account that the problem mentioned that the discs had same kind of charge. Eventually we figured it out (another GTA

pointed it out). There was a small issue because of the units. There were questions that required answers involving variables. We worked those out and she seemed happy with her work at the end of the session. In all, I really liked this session.

Reflection:

This session was interesting, mostly because it was not only kinematics and I got to do electric fields after a long time. The open ended questions help a lot, like the previous session. Sometimes, it helps to ask them what is given in the problem and what has been asked to find out. Also, drawing simple arrows to point out the direction of the electric fields helped to understand. I did not derive anything but used the formulae that they had. Since, the cases of electric fields are very specific, so they were less confused as they knew which ones to use.