Physics 441 course: UNDERGRADUATE STUDENT SEMINARS
Physics 730 course: GRADUATE STUDENT SEMINARS

Professor: M. N. Kunchur
Room: PSC 409   Time: Friday 1:25pm

This course teaches students to teach, and give seminars, colloquia, and conference presentations. Each student will give a talk on any physics topic of his/her choice. We will then dissect and critique the talk. Here are some guidelines on how to make your presentation most effective.

The material

The motivation and context for the work in the broader picture should be a clearly explained. Why does the work/topic even matter? What is the point of it all? Why is it worth the audience's time to listen to what you have to stay? The first order of business is to sell to the audience a strong reason to pay attention to what you have to say.

Make sure there is a logical flow and "story line". Include a generous introduction. Don't jump into the details of your own work before ample groundwork has been laid. Don't use terms that have not been adequately defined earlier. Invest enough time to have the audience properly understand the principles and techniques, so that they can understand and appreciate the meaning of your work.

Keep the message simple. You want to get across a few key points, not tell them about your entire life's work. People's attention span and patience are very precious and limited commodities—don't waste them. Don't show slide after slide of essentially repetitive information. For example, if a graph for one sample proves a certain point, you don't have to show them graphs for all the six other samples that you tested. You can just tell them that you tested those samples and obtained the same result (they will take you word for it or it opens the door for questions which is always a good thing).

Avoid showing long detailed calculations and technical minutia. You are not trying to prove that you can do math, nor provide a detailed recipe for some experimental procedure. Interested members of the audience can ask about details at the end of the talk. Tedious details can make the talk boring, so get to the punch line.

It is sometimes appropriate to give an outline at the beginning of the talk, especially for a very short (e.g., conference) talk. But for longer talks, don't give a "table-of-contents" at the beginning of the talk – it can seem like a list of chores that the audience must suffer through. A suspense novel or thriller movie doesn't give you a schedule of events. Similarly your talk should have some drama and suspense. The plot should propel itself – each new concept should be necessitated and motivated by its preceding discussion. Besides it is impossible for the audience to remember your "todo list" through the duration of talk, so what is the point of showing it?

The presentation and delivery

Text on slides should be large and clear. Keep the slides uncluttered and simple. Make sure figure symbols and labels are sufficiently large. If you have inserted a scanned image from a journal paper, paste large text boxes over the original axis labels and other places to make the information more visible.

Number your slides. Your software can do it automatically for free. This helps people to organize their questions.

Test the computer and projector combination. Ensure well in advance that all the technology is working. The beginning of the talk is not the best time to learn a new operating system on a computer you just bought or borrowed. Become completely familiar with the technology.

Make sure the laser pointer, slide changer, etc. have fresh batteries. Sometimes an old fashioned rod/stick, if available, can be better.

Consider the location of the projector and screen and plan where you will be standing or walking during the talk—this way you won't be tripping over cables, blocking the view, or casting shadows on the screen during your talk.

Connect with the audience. Try to gauge their level (in advance, to the extent possible). During the talk itself try to judge whether the audience is following what you are saying and adapt to them, i.e., change your agenda of what your are going to show depending on how the audience is digesting the material.

Speak slowly and clearly, don't mumble to yourself. Make eye contact with the audience when you speak so that people can see your facial expressions (also hearing impaired individuals need to see your lip movements). Look at all the people in the audience, not just your host or your friends. A talk, as well as a class lecture, should be a conversation.

Leave the conclusions/summary on the screen after you are done—this gives people a chance to continue reading it while you are answering questions. A slide with a "Thank you!" or a list of your students' names or collaborators is essentially useless information; this can be shown at the beginning of the talk or you can show it and then switch back to the conclusions slide again afterward.

Don't go over time (unless it is an informal gathering of collaborators). Remember that people in the audience have a life and other appointments. In the case of a conference, there will be other talks in the queue. If a conference talk is allotted 30 minutes, the talk itself should be planned for 25 minutes to allow time for questions and for a change of speakers, otherwise the session will not stay on schedule.