Notes on Talks in Advanced Lab by Roger Haar

Pride At least pretend to be proud of and interested in your work. This talk is practice for when you are selling yourself to you current or potential employer, or your chosen segment of the physics community (who probably control you grant funding.) Intend on convincing your audience including your instructor that you did good work.

Required transparencies

Title: Experiment's name, Your name, Coworkers, Institution NOT an abstract

Apparatus Clean drawing(s)

Consider a bit of color to separate things like light rays traveling in opposite directions

Show raw data If at all possible show a graph of your raw data.

A summary of measured parameters and uncertainties. Working equation

Results Right sig.fig's UNITS! Your measured value and uncertainty with accepted value beneath and aligned for easy comparison FOR EXAMPLE My value $(1.34 \pm 0.05) \times 10^{-2}$ meter

Accepted $(1.41 \pm 0.02) \times 10^{-2}$ meter

Conclusion Was it a good measurement? Errors.? Major source(s) of uncertainty? What went right and wrong? What would be the next step to improve the experiment?

Introduction In a few sentences, at a freshman physics major level, give an overview of the experiment and its goals. Outlines of the talks are usually a waste of time. You do not need to tell the audience that you are going to discuss things like the results and conclusions, because it is assumed. If you are going to take an odd path in your talk, then some guidance to the audience may help.

Consider telling up front your results, that way the audience is more aware of what to look for.

Physics not algebra Show the physics, not algebra. That is, use only enough equations to show where working equation came from, but not its step-by-step derivation. Show **free body diagrams** or **ray diagrams** or some other picture as appropriate for the starting point.

Data Analysis Do a real least-squares analysis with uncertainties if it is appropriate. If a slope was used in your calculations, show this plot.

Excel Computer programs like Excel may be useful, but you need to be in control. It is your responsibility that the labels are correct, the sig. fig's are correct, that uncertainties in the parameters are shown and the correlation coefficient, R, is not shown, unless you intend on explaining and defending its use. Do not have graphs with gray backgrounds.

TEXT Size 20-24 point font is usually a minimum size. Put the transparency on the floor and stand up, if you can read it, it is probably OK. For size, look at EVERY detail on the overhead transparency including labels for axes and subscripts. Leave at least 1 inch side and top margins and probably 2 inch bottom margin.

Creative Projects Talks

A good clear introduction is doubly important.

Separate what you did from other aspects that you report. Indicate your part at least somewhere in the first third of the talk, preferably in the introduction.

Misc.

Practice giving the talk at least once, so you have the time about right.

Talk on your BEST work.

Know what your are talking about, ASK instructor or TA's beforehand about anything you are unsure of!

Do not makeup stuff or guess at errors. NO BS!!

A talk is summary, so many details must be dropped.

If there are subtleties, have an extra transparency ready for questions.

Ask to be video taped.

If you give some history, know how to pronounce the names.

Use a pointer.

Number the transparencies.

Nothing extraneous should be on the overheads.

Do not take a page from your written report and then copy it to transparency, and finally highlight the part you need.

Use caution when showing tables. Usually there is too much information to be useful to the audience.

Graphs should have a title, labels, units, errorbars, . . .

If drawings, or text are borrowed, give credit.