Colorado State University

CHEM 372/431/475/477
Experimental Physical & Analytical Chemistry

Oral Presentation/Examination Notes

Each student in this course will prepare and deliver an oral presentation/examination during class time during one week and will submit a copy of the presentation slides file to the appropriate drop box on Canvas at the same time.

A projector and companion computer will be set up in a selected room for presentations and a laser pointer will be provided. Students will bring their presentations on their own USB disks in PDF format only (no other format will be accepted, that is, do not plan to show a PowerPoint presentation).

The presentation order will be reverse alphabetical (using the last name) and all students are expected to be present for all presentations. Students will make a presentation in their regularly scheduled section only.

Each student will be allocated fifteen (15) minutes in which to make an oral presentation including two (2) minutes of that time reserved for Q&A.

This part of the course will be the oral presentation of one of the written laboratory reports performed in this course during this semester. Students will be expected to make a serious oral presentation at an upper division college level on a topic of chemistry and to demonstrate subject knowledge by answering audience questions.

Students are advised to practice their presentations using the PDF slides prior to making them in class where they will be assessed and graded. Timing is important - do not run short or long.

The presentation must include the following items:

1. An upper-division level chemical description of the methodology, protocol and instrumentation used.
2. A clear and concise depiction of the experimental results obtained.
3. A critical discussion of the experiment. Critical does not mean cranky; it means **seriously** thinking about the weaknesses of the experiment.

Students will be reviewed and assessed on the above items and the following:

1. Quality of the story you tell.
2. Clarity of your thought as evidenced by your choice of words and the order in which you deliver them.
3. Your use of established chemical terminology and your avoidance of colloquial speech.
4. The logic you follow in your presentation and your ability to use language effectively (rhetoric).
5. The support you offer for the assertions you make.
6. The quality and readability of your figures, tables, images and text.
7. Your ability to answer questions posed by the audience.

Tell a logical and interesting chemical story. Do not organize your presentation like a written laboratory report - this style is extremely tedious. Tell what you now know about how nature works (in the context of a physical or analytic chemical measurement).

It is estimated that ten (10) slides are appropriate for the purposes of this presentation but feel free to use however many you need to tell your story. You must have a proper title slide with your the title of the presentation, your proper and full name, the date the presentation is given (in a proper format) and your affiliation (in this context it is the course name and number and section number).

Don't waste time or audience interest in describing the experimental failures - unless the failure's occurrence resulted in some deep insight (this is a high bar to overcome).

You may not use index cards or other notes with your presentation. You have everything you need on the projector screen right in front of you. If it isn't why didn't you put it there. Don't waste precious space on things that you don't need on the screen at that moment.

Organize your slides so that the information you want the audience to have at every moment is on the slide that is in front of them at that very moment. Then describe that information at that same moment. Doing this provides both visual and auditory cues to your audience.

Use both text and images (figures, graphs, tables, pictures, chemical structures, *etc*.) to stimulate those sensory centers of your audience members' brains.

It is not wrong to repeat (or duplicate) a slide or have the same information on more than one slide. It is wrong (not best practice) to go backward in your slides, to jump ahead or to repeatedly say "... more on this later."

Do not include an "outline of this presentation" slide. Of course you need to create an outline for yourself when you are building this presentation. However, we do not need to see it. Your presentation will be short also and you must not dissipate valuable time on an outline. It is arguably not best practice and it is also very unlikely that you will see one at your next Nobel Prize presentation speech.

Do not include a "questions?" slide. Do not ask the audience if there are any questions. End your presentation with an "acknowledgements" slide (entitled "Acknowledgements") with names (perhaps affiliations, if appropriate) of those that you wish to thank for helping you. End your presentation by clearly thanking the audience (using the "outside the head voice" not the "inside the head voice") for its attention.

Formal presentations follow a specific pattern (in best practices yet not always when the context is informal):

1. The host will introduce you, the presenter, by name so it is not appropriate or savvy for you to do the same. Your name is on your title slide also so we really do know it already.
2. Begin your presentation by briefly thanking the host and audience for their hospitality. It's really polite.
3. End your presentation with an "acknowledgements" slide not a "questions?" slide. (*vide supra*)
4. End by thanking the audience (using the "outside the head voice" not the "inside") for its attention.
5. Then shut up and stand there.
6. The host will then lead the audience in a round of applause thanking.
7. Then the host will invite the audience to ask questions. Let the host do this.
8. If no one has any questions to ask you then the host will jump in and start asking. This is also polite.

Saying where you "screwed up" a part of the experiment is not a critical discussion nor is it part of the uncertainty (not error) analysis. Inform the audience of the uncertainty of your measurements. In other words, your measurements indicate that the unknown sample 15 % plutonium by weight but is it ±1 % or ±10 % and how do you know?

You are strongly encouraged to include chemically sophisticated images (pictures or drawings) of any and all aspects of the experimental setup and protocol that would aid the audience in its understanding of the story. Include molecular formulas or structures of the molecules that are important to the chemical story. The same goes for chemical reactions. Provide no more than one example of the fundamental calculation that is used in the experiment and summarize the totality of results in concise tables. Also, it seems tedious for you to explain the exact quantity of the substances used in making up a particular solution, for example, a titrant and flows better if the concentration (with uncertainty) is provided.

Also, the audience does not really care about your dreams for the future in this exercise so skip the "future plans ..." slide. What the audience really wants to know is what you actually accomplished.

Don't be casual in any part of your electronic or personal presentation. If you think you are looking cool you are actually looking like a jerk and the audience knows it. The audience has much better things to do with precious time than to waste it on your half-hearted effort.

The point in this exercise is to inform the audience of other chemists in quickly and unambiguously understanding all aspects of the work and to demonstrate the depth of your knowledge of the subject.