

**Colorado State University**  
**CHEM 431**  
**Instrumental Analysis Chemistry Laboratory**  
**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 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 roughly two minutes included 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. A 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.

Students will be assessed and graded 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 an 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. 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. It is not wrong to repeat a slide or have the same information on more than one slide. It is wrong to go backward in your slides, to jump ahead or to repeatedly say "... more on this later."

You must not have an "outline of this presentation" slide or a "questions?" slide. These do not, in this reviewer's opinion, represent "best practices." You won't see either of these at your next Nobel Prize presentation speech.

Pay special attention to the following: The host will introduce you, the presenter, by name so it is not appropriate or savvy for you to do the same. Begin your presentation by briefly thanking the host and audience for their hospitality. Do not begin with "My name is ... ". End with an "acknowledgements" slide not a "questions?" slide. End by thanking the audience (using the "outside the head voice" not the "inside the head voice") for its attention. Then shut up and stand there. The host will lead the audience in a round of applause thanking you and the host will invite the audience to ask questions. It is not savvy for the speaker to do this.

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  $\pm 1$  % or  $\pm 10$  % 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.