Oral Presentation Handout

Oral presentation skills are important in nearly every career. Scientists and engineers present a conferences, to students, to their peers etc. Administrators and managers may give talks to committees about their work, or to groups of people in training. As students, presentation skills can lead to new opportunities in employment and in education. In addition, travel awards are often awarded to students who present at conferences.

Planning for Your Oral Presentation

Presentation Setting and Guidelines

- How much time? Question and answer?
- Who is the audience?
- What is the approximate size of the audience?
- Will they provide a projector?
- Should you prepare hard copies of your presentation? Will they make copies for you?
- Do you need to submit a title and abstract?

How to Effectively Work with Your Mentor To Plan Your Presentation

- Let them know dates and deadlines ahead of time and remind them graciously
- Get approval (does he/she want to approve final the talk?)
- Bring a hard copy of the presentation slides with you to planning and practice sessions.
- When practicing in front of them, ask if they will give their comments throughout or at the end (gives you a diplomatic way to ask for comments at the end)

Presentation Structure

- Identify the major question or goal of your project
- Determine components of your talk and approximate time for each component of your talk
    - Introduction and Background
    - Body
    - Conclusions
- Don't spend time making your slides until you have a good handle on your general outline
- Did your project answer the question or accomplish the goal?
    - If yes, how?
    - If no, why not and what could be changed to get an answer

Presentation Components

Introduction 10 – 30%

- Title: Concise, brief, but descriptive
- Overview (tell 'em what you're gonna tell 'em)
- Reason to listen
    - Get the attention of your audience
    - Why should the audience be interested?
- Background/context
    - What does the audience need to know to understand your work?
    - Remember your audience's background
    - How does your work contribute to the big picture within the group, the organization, the lab or even the bigger picture of science, engineering, and society?
    - Zoom in: start with big picture and focus in on your specific work
    - Give definitions, if needed. This can also be embedded in the body of the presentation
    - Define acronyms, review fundamental scientific concepts if applicable, explain instruments.
    - Give credit to important contributors (especially if they're in the audience!!)

Body 60 – 80%

This should be the work that you specifically completed. The body of the presentation is you "path" to your conclusion with little stops of details along the way.

- Determine your take home message(s)
- Tell a story that leads the audience to that message, gradually unfolding the facts.
- Use graphics (charts, flowcharts, diagrams, etc.) to simplify and organize
- Keep your purpose in perspective. Remember to return to your path if you get side tracked. It might be useful to use a flow chart repetitively to show where you are within the talk
- Be careful to differentiate between experimental evidence and speculation

Projects that are "questions"

- State the question
- Approach to answer question
- Results (data)
- Limitations of approach
- Explanation of what results mean - use your data to create a scientific explanation
- Alternative explanations
- Be careful to differentiate between experimental evidence and speculation
- Conclusions

Projects that are "designs" or "problems"

- Problem statement
- Approach to solve problem
- Constraints
- Design and support for design decisions
- Trade-offs and limitations imposed by your design
- Testing and verification
- Conclusions

Conclusion 5 – 10%
You can be creative in the way you express your concluding remarks.

- One slide
- Recapitulate the purpose, point out the evidence, state the conclusion
- Provide one final visual aid that consists of a single statement or diagram

Acknowledgements and References

- There are two common ways for including references:
    - Prepare a separate slide with all references
    - Integrate references throughout your presentation ← Highly Recommended!!
- Photos of your lab for acknowledgement (include names) are visually interesting
- Acknowledge funding for your project in writing (don't need to say). In this case: "Funding provided through the Center for Adaptive Optics, a National Science Foundation Science and Technology Center (STC), AST-987683.
- Double check that you didn't forget to included anyone in your acknowledgements (bummer on the big day to be standing in front of someone you forgot to thank).

Creating Your Slides

- Plan for 1-2 minutes per slide
- Limit each slide to one main idea
- Include no more than you will discuss on each slide
- Include titles to supplement, not duplicate
- Use several simple slides rather than one complicated
- Use duplicates if you need to refer to a slide already shown….don't go backwards
- Give credit where credit is due
- Be prepared to explain whatever you put up
- Don't spend time making the slides "pretty" until you are sure on the content

Presentation Time!

Delivery

- Enthusiasm is essential
- Be yourself. Capitalize on your own personality (loud and bubbly isn't the only way to show your enthusiasm)
- Clearly articulate every work and sentence
- Maintain eye contact
- Take your time, slowing down solves many problems
- Avoid monotony
    - Change your voice pattern
    - Repeat words or phrases
    - Pause
- Try to pause instead of filling the silence with "like," "um," "ya know?"
- Avoid distracting mannerisms

Beginning of Talk

- Fear is at a maximum, rapport at a minimum

- Establish contact with audience
- Jokes are risky….sometimes they work, sometimes they fall flat
- Title: concise, brief, accurate
- Examples

End of Talk

- Once you have stated your conclusion, stop! Avoid rambling on, repeating, etc.
- Give acknowledgements, if you haven't already, say thank you, pause for applause (we'll clap for you ☺), and offer to answer questions

Answering Questions

- Don't be afraid to take a moment to think
- Do your best to answer the question, even it it's only part of the answer or you're not sure (but don't make it up!)
- Be gracious
- Answer briefly and to the point
- Repeat the question if possible, this will:
    - Make sure you understood the question
    - Give you a chance to think
    - Make sure that the audience heard the question
- As a last resort, If you don't know the answer, say so:
    - "That is a good question, I hadn't thought of it like that before"
    - "I am not sure. I will have to give it some thought, perhaps we can talk more later"

Dealing with Fear

- Prepare and rehearse MANY TIMES
- It is a sign that you care
- Look calm
- Know your demons and minimize them
- Focus on what you are explaining. You have something important to say and we're all interested in it!
- Know relaxation techniques (deep breathing, relaxing your hands, etc.)
- Find a friendly face in the audience
- If you find yourself lost, focus on your message
- If you have a tricky or rough spot, memorize those few lines that get you through
- There is no one way to deal!!

Things to Avoid

- Taking up too much time – plan for 80% of allotted time so you don't go over
- Apologies – this draws attention to your faults
- Putting unnecessary text or diagrams on visuals
- Reading the slide or your notes excessively
- Omitting credit when due
- Spending too much time looking at visual displays (turning your back to your audience)
- Large last minute changes to your talk. Remind them when you will give the presentation

Final Checklist

- ✓ Rehearse – especially subtleties like transitions between slides, clarification of vague statements and strengthen weak points or rough spot.
- ✓ Dress to feel confident, comfortable, and show respect for audience
- ✓ Relax. Get a good night's sleep and don't forget to eat
- ✓ Summarize your presentation in 2-3 well-constructed sentences
- ✓ Work on transitions between slides
- ✓ Get comfortable with your laser pointer, the room, computer set-up, etc.
- ✓ Have your presentation on disk, on line etc. Have two back up plans. It is your responsibility to get your presentation on the computer you'll be presenting from
- ✓ Check in with session chair or moderator

Notes:

Examples of Using Graphics to Simplify and Organize Presentations

Importance of Mirror Alignment

- Aligning mirrors reduces losses due to beam truncation, distortion at focusing mirror, and absorption and reflection at windows and mirrors.
- Achieve maximum efficiency:
  - 230GHz – 0.7-0.8
  - 345GHz – 0.55-0.65
  - 690GHz – 0.4

2

VS.

Importance of Mirror Alignment

Align Mirrors → Reduce Losses → Achieve Maximum Efficiency

Due to:
- beam truncation
- distortion at focusing mirrors
- absorption and reflection at windows and mirrors

230GHz – 0.7-0.8
345GHz – 0.55-0.65
690GHz – 0.4

1

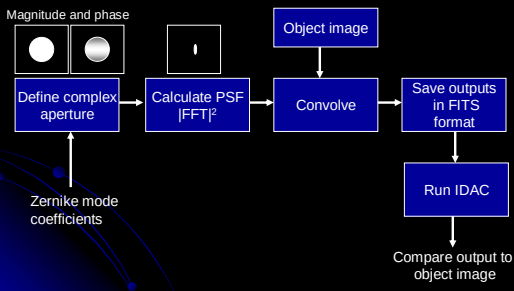
Process for Simulation & Reconstruction

- ✓ Create a signal or read in jpeg image as gray scale
- ✓ Define complex aperture of optic – circular aperture + zernike phase aberration and levels
- ✓ Take intensity of Fourier transform of complex aperture to create PSF function
- ✓ Convolve with original image to create blurry image
- ✓ Save image and PSF function in FITS format for IDAC
- ✓ Run IDAC program
- ✓ Examine output files and compare output image to input image quality

Christou, J. and Hege, K. "Point Spread Function using Iterative 'Blind' Deconvolution," Retrieved June 28, 2005 from http://cfao.ucolick.org/software/idac/.

VS.

Process for Simulation & Reconstruction



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Current AScILS Inquiry Strand Focus:
Which science inquiry skill(s) or knowledge should be assessed?

Many inputs into deciding which inquiry skill:
- CfAO Student Survey
- Assessment Literature
- AScILS Alumni Survey
- AScILS Qualitative Study (interviews)
- Team members prior experience
- Intern advisor/mentor meeting

VS.

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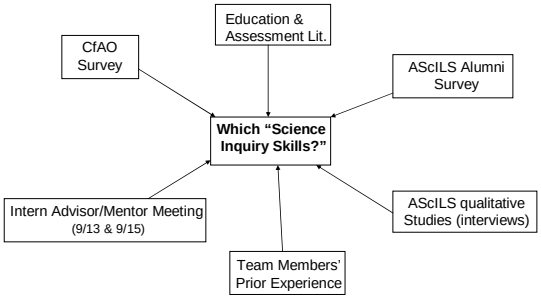

Results: C-100

- 14 Subjects
- 12 Subjects Had Normal Color Vision
- 2 Subjects Had a R-G Color Defect

VS.

Results: C-100