The Research Presentation

- Training Agenda
  - Overview and key points
  - Slide layout
  - Use of graphics
  - Presentation content
  - Preparing and presenting

- Overview and Key Points
  - Purpose of a research talk
    - Is not to
      - Impress the audience
      - Tell them all you know about a subject
      - Present every little detail of your work
    - Is to
      - Give the audience a sense of what your idea/work is
      - Make them want to read your paper
      - Get feedback on your work

- Know Your Audience

  - Who would be there?
    - Scientists expert in your field
    - Scientists not expert in your field
    - Students
    - Non experts
    - Who knows?
  - Most likely a mix so have something for all
  - Know your audience
    - Keep in mind
      - They might be tired
      - They can read
      - They are thinking “Why should I listen?”
      - Non-experts will tune off within 2 minutes
      - Experts after 5 minutes
  - What can you do?
    - Early motivation - at the beginning of your talk motivate your research with easy to understand examples
• Spoil the punch line - State your results early and in simple terms
• Visuals – Illustrate your idea with images and diagrams
• Leave them with these thoughts
  • I understood what the problem was and why it was important
  • I have an idea of what her solution was and how it was different/better than others
  • She knows the literature (i.e. quoted my work) and we might collaborate on this aspect of her research
• Slide Layout
  • Keep in mind...
    • Less is more. Fill in with narration not words
    • Use animation sparingly
    • Use color to emphasize some points but limit to 2 or 3
    • Be consistent! In the choice and use of color font size/type etc
    • Use slide real estate appropriately
  • Slide layout – Bad
    • This page contains too many words for a presentation slide. It is not written in point form, making it difficult both for your audience to read and for you to present each point. Although there are exactly the same number of points on this slide as the previous slide, it looks much more complicated. In short, your audience will spend too much time trying to read this paragraph instead of listening to you.
  • Slide layout – Good
    • Show one point at a time:
      • Will help audience concentrate on what you are saying
      • Will prevent audience from reading ahead
      • Will help you keep your presentation focused
• Fonts – Good
  • Use a decent font size (at least 18pt)
  • Use different size fonts for main points and secondary points
  • this font is 24-point, the main point font is 32-point, and the title font is 44-point
  • Use a standard font like Times New Roman or Arial
• Fonts – Bad
  • If you use a small font, your audience won’t be able to read what you have written
  • CAPITALIZE ONLY WHEN NECESSARY. IT IS DIFFICULT TO READ
  • Don’t use a complicated font
• Color – Good
  • Use font color that contrasts sharply with the background
  • Blue font on white background
  • Use color to reinforce the logic of your structure
  • Ex: light blue title and dark blue text
  • Use color to emphasize a point
  • But only use this occasionally
• Color – Bad
• Using a font color that does not contrast with the background color is hard to read
• Using color for decoration is distracting and annoying.
• Using a different color for each point is unnecessary
• Same for secondary points
• Trying to be creative can also be bad

• Background – Good
  • Use backgrounds such as this one that are attractive but simple
  • Use backgrounds which are light
  • Use the same background consistently throughout your presentation
  • Standard PPT templates are generally good

• Background – Bad
  • Avoid backgrounds that are distracting or difficult to read from
  • Always be consistent with the background that you use

• Graphics
  • Keep in mind....
    • Graphics should be brief.
    • They need to:
      • support the spoken word,
      • help clarify examples,
      • emphasize key points,
      • show relationships,
      • Illustrate concepts, and
      • provide the visual information your audience needs to understand your research.
  • Reading from your slides is not an effective form of presenting.

• Graphs – Good
  • Use graphs rather than just charts and words
  • Data in graphs is easier to comprehend & retain than is raw data
  • Trends are easier to visualize in graph form
  • Always title your graphs
  • Use titles that clearly explain what the graph is illustrating

• Graphs – Bad

<table>
<thead>
<tr>
<th></th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Balls</td>
<td>20.4</td>
<td>27.4</td>
<td>90</td>
<td>20.4</td>
</tr>
<tr>
<td>Red Balls</td>
<td>30.6</td>
<td>38.6</td>
<td>34.6</td>
<td>31.6</td>
</tr>
</tbody>
</table>

• Graphs – Good

Items Sold in First Quarter of 2002
- Graphs – Bad
  - Minor gridlines are unnecessary
  - Font is too small
  - Colors are illogical
  - Title is missing
  - Shading is distracting

- Diagrams – Good
  - Illustrates point
  - Simple
  - Colors have a purpose
  - Clarifies information
• **Diagrams – Bad**

![Diagram](image)

• **Presentation Content**
  - How to make your point
    - You have three chances to make your point:
      - During title slide: make a brief statement
      - Results: these should demonstrate your point
      - Conclusion: restate your point clearly and explicitly
  - Technical details: in or out?
    - A fine line
    - Present specific aspect that show the “meat” of your work
    - Leave the rest out. If you were convincing they will read your paper
    - Don’t fill up your slides with lots of equations
  - Prepare back-up slides to answer questions. Leave them at the end of the presentation
  - Use examples
    - Examples are your weapon to
      - Motivate your work
      - Illustrate the basic intuition
      - Show your solution in action (baby problem)
      - Highlight extreme cases or shortcomings
    - If you are running out of time cut the general case not the example

• **Required sections**
  - The research academy requires these three parts:
    - Answer the question: “what is research?”
    - Research experience – described on next slide
    - Research opportunities – from the handouts!

• **The skeleton**
  - What is the problem
  - Motivation and goals
  - Relevant state of the art
  - What is your key idea/contribution
  - Why is your approach good/better
  - Conclusion: what I just said and what I want to do next
• Problem statement/motivation
  • Give a simple explanation of your results when introducing the research during your title slide!
  • Give a brief presentation outline/agenda
  • State the problem in basic terms
  • Explain why your research is important or useful – what motivates you to do what you do?
  • What are your goals and expected outcomes?

• Relevant state of the art
  • This is where the lit survey comes in
  • Be familiar with all related work
  • Don’t list each paper you read
  • Mainly talk about results that are immediately related to what you did
  • References at the end of the talk or better in the paper itself
  • Acknowledge co-authors (title slide)

• What is your key idea?
  • Methods, materials, experimental setup
  • Governing equations/theory
  • This may need to be addressed earlier
  • Boil everything down to the basic ideas:
    • Just enough for everyone to understand what you are talking about
    • Begin discussing your results

• Why is your approach better?
  • Interpret your results!
  • Your results should provide support for your hypothesis
  • Don’t leave it up to your audience to figure out how your results do this
  • What makes your approach original?
  • How does it improve previous research?

• Conclusion
  • 3rd and final chance to drive your point home
  • Restate your most important result
  • State any significance of this result
  • What does this result imply for current and future research in this subject?
  • End with a discussion of possible future work

• Preparing and presenting
  • Preparing the presentation
    • Prepare the slides in advance
    • Show them to friends
    • When you think you are done read them again
    • Check all animations with the sound on
    • Putting together slides and presenting them are two different things
    • Practice, practice, practice
    • Give a practice talk to a general audience
    • Give a practice talk to an audience of expert
    • Time your presentation (allow for speed up effect caused by nervousness)
    • Confidence comes with practice
    • Always assume technology will fail you. Have backups.
• Delivering the talk
  • Be enthusiastic! If you aren’t why should the audience be?
  • Make eye contact with the audience
  • Identify a few “nodders” and speak to them
  • Watch for questions. Be prepare to digress or brush off when irrelevant
  • Stand up straight
  • Project your voice and enunciate
  • Point at the screen not the computer
  • Do not read directly from the PPT or your notes
  • Have the “spill” for the first couple of slides memorized in case you go blank
  • Be comfortable with what you know
  • Finish in time
• Handling questions
  • Different types – handle accordingly
    • Need clarification
    • Suggest something helpful
    • Want to engage in research dialog
    • Show that he/she is better than you
  • Anticipate questions (additional slides)
    • Don’t let them highjack the talk (postpone)
• Time management
  • General rule: one slide per minute
    • 40 minutes = 40 slides
    • 4 presenters = 10 minutes each
    • 1 minute = 4-5 sentences
• Write notes!
  • Each sentence should be summarized by a bullet point in your notes
  • Time each individual slide
• Expectations
  • We want to know:
    • Do you understand the material?
    • What new things did you learn?
    • Do you understand the significance of your project?
    • Did you answer the question “what is research?”
    • Do you have a better understanding of how to make a research presentation?
• How can I get better?
  • Practice every chance you can
  • Observe others
  • Steal good presentation ideas
  • Notice all the things that turned you off
  • Seek comments from friends and mentors and each other