2005 UWEB Communications Workshop

Presenting a Scientific Talk
Part II
Jennifer Patterson
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The Scientific Presentation: Content and Organization

- **Introduction (15-30%)**
  - Title slide (include title, authors, organization)
  - “Outline” or “mapping” slide for long presentations
  - Background (previous work, significance)
  - Objectives (hypothesis and specific aims)

- **Main Body (50-75%)**
  - Materials and methods
    - Figures or flow charts
  - Results and discussion

- **Conclusions (10-20%)**
  - Future work and implications
  - Acknowledgments
    - Funding, people who contributed to work
Repetition Is A Good Thing

- Tell them what you’re going to tell them

Introduction

- Tell them

Main Body

- Tell them what you’ve told them

Conclusions
Introduction

- Get the attention of the audience
  - Motivation - 2 minutes to capture attention
  - Your motivation needs to become the audience’s motivation to pay attention
- Start general and narrow to focus
- Present background material
- State hypothesis and objective of study
Main Body

- Materials and methods
  - Clearly explain the experimental procedures
  - Do not give every little detail
  - A picture is worth a thousand words

- Results
  - Present and explain the data
  - Highlight important findings
Conclusions

- Summarize work
- Relate main findings to hypothesis and overall work in the field
- List future directions of work
  - Specific next steps
  - Implications of results
- Acknowledgements
Creating Good Slides

- Comprehend in less than 1 minute
- Specific purpose or conclusion for each slide
- Contains all essential information
- Visually stimulating
  - Graphics and images in addition to text
  - Good use of space
- Minimize text on slide (bullets)
  - Prevents reading of slide

**Adapted from Allan Hoffman’s “Anatomy of a technical presentation”**
Slide Format - Templates

- Unifying image for presentation
  - Too much can be distracting
  - Typically small graphic or subtle background pattern
- In Powerpoint: Format → Slide Design
  - Select from pre-loaded templates
- Can modify or create your own
  - View → Slide Master
- Include organization or company logo
  - Can be a starting point for color scheme
Slide Format - Color Scheme

- Also provides unifying and professional image
  - In Powerpoint: Format → Slide Color Scheme
    - Sets text, background, and accent colors for all slides
- Contrast shows up best
  - Dark on light OR
- Consider room lighting
  - Dark on light better for well-lit rooms
- Consider material you will be presenting
  - Fluorescence micrographs look better on dark background
Slide Format - Font

- Use one font throughout presentation
  - Could use second font as highlight
  - Common choices (sans-serif): Arial, Helvetica
    - Times (serif) is better for written documents

- Choose font size large enough to see in back of room
  - 44 point, 36 point, 28 point, 24 point, 20 point, 18 point, 16 point, 14 point, 12 point, 10 point, 8 point
  - Don’t forget about text in figures

- Highlight with **bold**, *underline*, *italics*, shadow, or color
  - Latin phrases in italics (*in vitro, et al.*)
Text *versus* Images

- **Text - MINIMIZE USE**
  - Include statements of key points
    - Limit subpoints
  - Make slide titles useful and informative
    - Active titles - sentences
  - Consider graphs instead of large tables

- **Images - MAXIMIZE USE**
  - Images or graphs of data
  - Schematics, flow charts or cartoons
  - Animation or movies
    - Don’t overuse
    - Practice first!
  - Avoid clip art
Formatting Figures

- **Graphs**
  - Check font size for all labels
  - Don’t include too much data on one graph
  - Include error bars where appropriate
    - Be careful with trendlines

- **Images**
  - Include a scale bar and labels
  - Avoid enlarging picture too much
    - Pixelation or fuzziness
  - Reduce resolution of picture in Photoshop to avoid large file sizes
A Bad Graph

Hydrogel Swelling in Water After 195 Hours

Swelling Ratio = $\frac{W_s}{W_d}$

Degree of Substitution (%)
Swelling Response of HA Hydrogels after 195 Hours in Water

Swelling Ratio = $Ws/Wd$
Working with Excel

- Choose correct type of plot
  - Scatterplot *versus* bar graph

- Present data as averages with error bars (standard deviation)
  - =AVERAGE(A1:A5)
  - =STDEV(A1:A5)

- Plot using chart wizard
  - Format axes to change font sizes
  - Format data series to add error bars
    - Can be fixed percentage or custom
  - Chart → Add trendline
    - Select proper regression type - not always linear

- Insert as picture (paste special)
Citations

- Cite ALL material and data from others

  - Minimum

  - More complete
Revisions

- Focus on content
  - Eliminate extraneous slides

- Practice
  - Friends or colleagues who will give honest criticism

- Spend time on background and color choices at beginning of process
  - Prevents having to reformat slides

- Proofread!
Delivery

- Posture - stand up straight; don’t fidget, sway, bounce
- Gestures - use, but don’t overuse (i.e. laser pointer)
- Voice - loud enough, face audience, steady pace
- Eye contact - look at audience members, don’t focus on one spot
- AV - know the equipment; get there early and check
- Confidence - anxious but excited; don’t apologize

Audience wants you to be entertaining & informative

RELAX, RELAX, RELAX

**Adapted from Buddy Ratner’s “Effective communication: the art of oral presentation”**
Handling Questions

- Leave time for questions
- Always repeat the question
  - Also allows others to hear the question
- For clarification questions, answer directly and simply
- For hypothetical or significance questions, don’t guess or mislead
- Acknowledge the validity of the question
  - “That is a very good question”
  - Gives you a few seconds to compose an answer
Oral Presentations: Advanced Topics

Do as I say, not as I do.....
A Great Reference

- The Craft of Scientific Presentations: Critical Steps to Succeed and Critical Errors to Avoid by Michael Alley
  - Available as an electronic book through the UW library (search in catalog)
  - [http://www.writing.eng.vt.edu/courses/presentations_workshop.html](http://www.writing.eng.vt.edu/courses/presentations_workshop.html)
  - More detail, example slides, templates
A sentence as a title on the slide will increase the power of the presentation

- Back up with images on body of slide and minimize bullet points
- Technical details
  - Make a statement, not just a phrase
    - Periods separate sentences in a paragraph so are not needed on slides
  - Left justify, only first letter capital
  - Keep to 2 lines
  - Choice of background design can be limiting - keep it simple
  - Put logo/design in lower right corner of slide

**Concepts from Michael Alley’s Workshop on Technical Presentations**
An example

Specific Aim 1: Preliminary Studies

Several mechanisms provide control of release from HA hydrogels, including...

Electrostatic interactions with negatively-charged HA

<table>
<thead>
<tr>
<th>Protein</th>
<th>pl (calc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPG</td>
<td>8.27</td>
</tr>
<tr>
<td>VEGF_{165}</td>
<td>7.29</td>
</tr>
<tr>
<td>BSA</td>
<td>5.75</td>
</tr>
</tbody>
</table>

- Release into PBS, pH 7.4, at 37°C

Specific Aim 1: Preliminary Studies
For a longer presentation, consider a mapping slide instead of a bulleted outline

- Utilize images in conjunction with text to provide outline of talk

- Show connections between sections and overall flow of talk
An example of a mapping slide

This talk compares theory with measurements and gives the environmental implications.

Theory for Hg cycling in Arctic springtime

Measurements from Zeppelin Air Monitoring Station

Environmental implications of AMDEs

**from [http://www.writing.eng.vt.edu/me5984/samples/aspmo.pdf](http://www.writing.eng.vt.edu/me5984/samples/aspmo.pdf)**
Atmospheric Mercury Depletion Events (AMDEs) in Polar Regions During Arctic Spring

Katrine Aspemo  
Torunn Berg  
Norwegian Institute for Air Research  

Grethe Wibetoe  
University of Oslo, Dept. of Chemistry  

June 16, 2004  

**from http://www.writing.eng.vt.edu/me5984/samples/aspmo.pdf**
Using animations

- Slide Show → Custom Animation

- Simple effects
  - Delay appearance of an image or text
    - Bullet points appear one at a time
    - Don’t overuse!
Inserting Movies and Sound

- Insert → Movies and Sounds → Your choice
  - Make sure to use the right file format for movie
- Remember to copy movie/sound file along with PowerPoint file
- Test in advance on actual equipment
  - Are there speakers for sound files?
  - Know how to use the mouse
- Is movie/sound necessary and appropriate
  - Timelapse movies are most common for scientific presentations
More Complex Animations

- Using the drawing toolbar
- Hiding images
- Using the custom animation settings
  - Motion paths