2005 UWEB Communications Workshop

Advanced Oral Presentation
Topics Continued
Jennifer Patterson
July 6, 2005
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
  - 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

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

Electrostatic interactions with negatively-charged HA

- Release into PBS, pH 7.4, at 37°C

Specific Aim 1: Preliminary Studies

<table>
<thead>
<tr>
<th>Protein</th>
<th>pI (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>
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
Atmospheric Mercury Depletion Events (AMDEs) in Polar Regions During Arctic Spring

Katrine Aspmo
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
2005 UWEB Communications Workshop

Writing a Scientific Research Article
Jennifer Patterson
July 6, 2005
The Scientific Paper

- Research articles
  - Most common type of publication
  - New discovery (focused study)

- Review paper
  - Summary of multiple works (key findings)
  - Intended to broadly educate/introduce to field

- Technical communications
  - Detailed description of novel methods
  - Generally lack scientific question
Objectives and Significance

- Dissemination of knowledge
- Transmit message to a broad audience
- Clarity, conciseness, accuracy
- Your contribution to your field
  - Establish your area of expertise
- Establish your reputation
  - Graduate school acceptance
  - Increased likelihood of funding
  - Tenure/job promotion
General Rules

- Only publish new material once
- Do not break up a single study into 2 papers
- Do not plagiarize
- Do not falsify data
- Use active rather than passive voice
- Use correct verb tense
  - Past tense for completed work
  - Present tense OK for introduction and discussion
Stages of Writing

1. Getting in the mood
2. Writing a first draft
3. Revising, revising, revising
4. Sending it out
Writing Strategy

- List the main ideas
- Outline the paper
  - Use subheadings in sections
- Fill in the information
  - Start with the easiest section first
  - Details of protocols and results
- Fine tune the writing
  - Grammar, spelling
- Smooth out the sections
  - Good transitions
Paper versus Presentation

Paper
1. Title
2. Abstract
3. Introduction
4. Materials & Methods
5. Results
6. Discussion (& Conclusion)
7. Acknowledgments

Presentation
1. Title
2. Introduction
3. Methods (& Materials)
4. Results & Discussion
5. Conclusion
6. Future Work
7. Acknowledgments
<table>
<thead>
<tr>
<th>Ordering of Appearance</th>
<th>Actual Writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Title</td>
<td>1. Materials &amp; Methods</td>
</tr>
<tr>
<td>2. Abstract</td>
<td>2. Results</td>
</tr>
<tr>
<td>3. Introduction</td>
<td>3. Discussion &amp; Conclusion</td>
</tr>
<tr>
<td>5. Results</td>
<td>5. Acknowledgements</td>
</tr>
<tr>
<td>6. Discussion &amp; Conclusion</td>
<td>6. Title</td>
</tr>
<tr>
<td>7. Acknowledgments</td>
<td>7. Abstract</td>
</tr>
</tbody>
</table>
Main Components of Paper

- **Introduction**
  - Start general and narrow to focus
  - Present relevant background material
  - State hypothesis and objectives of study

- **Main body**
  - Include methods and results
  - Clearly explain the data
  - Present the data and relate the main findings

- **Ending**
  - Repeat the main findings and relate to hypothesis
  - Discuss implications of work and future directions
  - End with conclusion and acknowledgments
Title

- Succinct and powerful
  - Delete unnecessary words

- Broad yet specific
  - Do not overstate but make it interesting

- Use keywords or buzzwords
  - Attracts interest
  - Comes up in database searches

- No abbreviations
  - Exception - very common words like DNA
Authors

- Include those who made significant contribution to the publication
  - This includes hypotheses and research direction!
- You are main author
  - Typically listed first
- Final author is PI
- Remaining authors are your mentor and other researchers in lab who contributed to the data
A model for studying epithelial attachment and morphology at the interface between skin and percutaneous devices

Negar G. Knowles¹, Yuko Miyashita¹, Marcia L. Usui¹, Andrew J. Marshall², Annalisa Pirrone¹, Kip D. Hauch³, Buddy D. Ratner²,³, Robert A. Underwood¹, Philip Fleckman¹, John E. Olerud¹*

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From Journal of Biomedical Materials Research Part A
Abstract

- Summary of complete study
- Relatively short
  - 150-300 words
- Length and format dependent on journal
- Should stand alone
  - No references or figures
- Limit description of methods
  - 1-2 sentences
- Most important section
  - Most widely read, after title
  - Attracts audience
Introduction

- Background
  - General field, what has been done, rationale

- Objectives
  - Relevance of your project, hypothesis (purpose), what you have done

- Comparable to discussion
  - Try to capture reader’s attention
    - But don’t give everything away

- Judicious choice of references
  - Primary papers, not reviews
  - Most important work in field
Database Searching

- UW Databases
  - http://www.lib.washington.edu/types/databases/

- Medline

- Web of Science Citation Databases

What to search for

- Keywords
- Authors who are leaders in field
- Start with a paper you know

Cite the primary source

Cite important papers/review articles
Materials and Methods

- All elements of research used to produce results
  - So it can be repeated by others
  - Includes specific information
    - Model numbers for equipment
    - Vendor and location for materials

- Cite previously described methods
  - Include brief description
  - Reference the original appearance of method

- Include more details than for presentation
- Some journals have on-line supplements
Results

- Presentation of the data
  - Keep concise and clear
- Include data supporting hypothesis and aims
  - Most relevant information
- Include data to support everything mentioned in the discussion
- Present in logical order
  - Not necessarily chronological order
  - Order materials and methods the same way
  - Go back and characterize big discovery
Results Continued

- Results reported as both figures and text
- Specific mention of figures and tables
  - In order that they are referenced in text
  - Describe data in text and reference figure
    - “……... (Figure 1)”
- Judicious choice and arrangement of data
  - Limited space
- Present only analyzed data
- Do not provide interpretation in results section
  - Unless combined with discussion section
Discussion

- Interpretation of the results
  - Larger meaning of the work within context of study and previously published research

- Data are never “good” or “bad”
  - “Expected” or “unexpected”
  - Mention conflicting or negative results

- Use literature to broaden discussion
  - Compare results and conclusions
  - Be tactful
Discussion Continued

- Show your intelligence
  - Propose explanations for results
  - Display analytical skills
  - Show understanding of your project

- Be creative and imaginative
  - Potential implications of the results
  - Possible future work or directions

- Include conclusions within discussion section
  - Sub-section
Acknowledgments

- List those who helped
  - Helpful discussions
  - Technical assistance
  - Donated reagents

- Do not acknowledge other authors

- Include facilities used
  - UWEB, NESAC/BIO, etc.

- Funding sources
  - May be individual for some authors
  - Use NIH or NSF grant numbers
Great References

- Particularly for improving your overall scientific writing style
- The Craft of Scientific Writing by Michael Alley
- http://www.writing.eng.vt.edu/courses/writing_half_day.html
  - Avoiding errors of structure, language, and illustration