Presenting a Scientific Talk
Jennifer Patterson
June 23, 2004
Course Info

- Class Meeting times and locations
  - Wednesdays June 16 - August 4, 11AM-12PM, Bagley 405
  - August 11 and 12, 9AM-12PM, Balmer 309
  - August 19, 10AM, SCC 303

- Instructor: Jennifer Patterson
  - Office: Bagley 425/411
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  - Office Hours: Wednesdays, 12-1PM
## Workshop Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 16</td>
<td>11AM</td>
<td>Lecture: <em>Introduction</em></td>
</tr>
<tr>
<td>June 23</td>
<td>11AM</td>
<td>Lecture: <em>Presenting a scientific talk</em></td>
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<tr>
<td>June 30</td>
<td>11AM</td>
<td>Student practice presentations</td>
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<tr>
<td>July 7</td>
<td>11AM</td>
<td>Student practice presentations</td>
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<tr>
<td>July 14</td>
<td>11AM</td>
<td>Lecture: <em>Preparing a scientific poster presentation</em></td>
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<tr>
<td>July 21</td>
<td>11AM</td>
<td>Lecture: <em>Writing a scientific research article</em></td>
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<tr>
<td>July 28</td>
<td>11AM</td>
<td>Lecture: <em>Reviewing scientific papers</em></td>
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<tr>
<td>August 4</td>
<td>11AM</td>
<td>Peer review of papers</td>
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<tr>
<td>August 11</td>
<td>9AM</td>
<td>Final presentations</td>
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<tr>
<td>August 12</td>
<td>9AM</td>
<td>Final presentations</td>
</tr>
<tr>
<td>August 19</td>
<td>10AM</td>
<td>Poster session</td>
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<tr>
<td>Assignment</td>
<td>Due Date</td>
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<td>------------------------------------------------</td>
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<tr>
<td>Individual assessment</td>
<td>June 16 (end of class)</td>
<td></td>
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<tr>
<td>5 minute practice presentation (introduction and methods)</td>
<td>June 30 or July 7</td>
<td></td>
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<tr>
<td>Draft layout of poster</td>
<td>July 21</td>
<td></td>
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<tr>
<td>First draft of paper (introduction and methods)</td>
<td>August 4</td>
<td></td>
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<tr>
<td>Rough draft of paper (to instructor)</td>
<td>August 11</td>
<td></td>
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<tr>
<td>Final presentation</td>
<td>August 11 or August 12</td>
<td></td>
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<tr>
<td>Poster</td>
<td>August 19</td>
<td></td>
</tr>
<tr>
<td>Final paper (to Fanaye Turner)</td>
<td>August 20</td>
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Assessment Results

- Graphics programs such as PhotoShop
- Spreadsheet programs such as Excel
- Word processing programs such as Word
- Presentation programs such as Powerpoint
- General oral presentation skills
- Scientific presentation skills
- General writing (i.e. grammar)
- Scientific writing
- Scientific literature searches
- Statistics
- Data analysis
- Laboratory techniques
- Experiment design (smaller scale)
- Research project design (larger scale)
Topics Covered

- Graphics programs such as Photoshop
  - June 30, email specific questions
- Spreadsheet programs such as Excel
  - Today
- Word processing programs such as Word
  - Not needed
- Presentation programs such as Powerpoint
  - Today
- General oral presentation skills
  - Today
- Scientific presentation skills
  - Today
- General writing
  - Not covered specifically
Topics Covered

- Scientific writing
  - July 21 and 28
- Scientific literature searches
  - Previous lecture - June 16
- Statistics
  - Some today, ask your mentor
- Data analysis
  - Some today, ask your mentor
- Laboratory techniques
  - Ask your mentor
- Experiment design (smaller scale)
  - Ask your mentor
- Research project design (larger scale)
  - Ask your mentor
The Oral Presentation

- First chance to associate name with face
- One shot to communicate ideas effectively

“The skill of presenting an engaging and well-structured seminar often determines our professional reputation and future success…”

- Robert R. H. Anholt, Dazzle ‘Em With Style
Significance

- People remember 10% of what they hear
- Short-term memory retains 5-7 ideas

Visual learners  
Auditory learners

Appeal to both and get your point across

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

- Know what you are getting into
  - Audience, time limits, focus of talk
- Create good slides
  - Easier said than done
- Practice
  - Alone and with an audience
- Revise, revise, revise
- Anticipate questions
  - The sign of a good presentation
Know Your Audience

What you want
- Understands your subject
- Eager to hear your presentation
- Courteous and respectful
- Wide awake

What you get
- Does not know you or your subject
- Planning where to be next
- Focused on their own talk
- Forgot to turn off cell phone or beeper
- Sleepy, inattentive
Pleasing Your Audience

- Create a favorable impression
  - Look and act professional
  - Show enthusiasm for topic (it’s OK to smile)
  - Stay within time limit
  - Prepare and exciting presentation

- How to offend an audience
  - Inappropriate behavior (dress, manner of speech)
  - Arrogance or over-confidence
  - Poor delivery of presentation
  - Running over time
Keeping On Time

- Know the time
  - Bring a watch or timer if there is no clock in room

- If you start running short on time
  - Avoid by practicing final talk several times
  - Speed up talking
  - Only present most important findings and skip over details
  - Skip slides if necessary

- But do not panic
  - Do not skip everything and go right to the conclusion
Content and Organization

- **Introduction (15-30%)**
  - Title slide (include title, authors, organization)
  - “Outline” slide only 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 light on dark
- 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: Arial, Times, Helvetica

- 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**
  - Use bullet points instead of sentences
  - Make slide titles useful and informative
    - Active titles
  - 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!
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 = \( \frac{W_s}{W_d} \)
A Better Graph

Hydrogel Swelling in Water after 195 Hours

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

Degree of Substitution (%)
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