

20.109 Communication Workshop 3: Journal Club Presentation

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Helping you communicate effectively.
be.mit.edu/communicationlab

Workshop structure

1. Why subject matters
2. Discuss an example from the field
3. Derive principles and strategies
4. Practice
5. Leave with a checklist/rubric

Journal clubs require you to identify & efficiently present the most important parts of a scientific work.

- Crucial skill for communicating your own research
- Required professional activity
 - Stay up-to-date with the field
 - Collaborative learning

Review assignment rubric

Category	Elements of a strong presentation	Weight (%)
Knowledge and explanation of subject matter:	<ul style="list-style-type: none"> conveys <i>big picture</i> understanding presents the essential information (saves minor details for Q&A) accurate description of facts, procedures, hypotheses, etc. 	65
Introduction	<ul style="list-style-type: none"> introduce yourself and credit the authors of the paper clear and concise description of the central question addressed by the paper, <i>and</i> its significance contains sufficient background needed to understand the results 	(15)
Methods	<ul style="list-style-type: none"> gives information necessary (and no more!) to understand results shows overview of experimental flow/approach if appropriate 	(10)
Data	<ul style="list-style-type: none"> related to central question complete and concise explanations integrated results + discussion 	(30)
Summary/Conclusions	<ul style="list-style-type: none"> key findings reiterated and put into context of past and/or future work 	(5)
Q&A	<ul style="list-style-type: none"> answers that convey understanding when you lack knowledge, tell how you would approach the question based on what you <i>do</i> know 	(5)

Overall organization of talk	<ul style="list-style-type: none"> logical, easy-to-follow narrative main points emphasized, repeated (preview/tell/review) transition statements between ideas 	10
Overall effectiveness of slides (text and visuals)	<ul style="list-style-type: none"> slide titles convey key message good balance of text and figures text/figures large enough to be seen (including axis labels!) considered use of color not too many or too few slides 	15
Overall effectiveness of delivery	<ul style="list-style-type: none"> confident, enthusiastic delivery main points verbally emphasized get to main points quickly strong eye contact limited gestures use of both technical and informal language as appropriate 10' length (+/- 0.5 min) 	10

Avoid common 20.109 pitfalls

DON'T

Start so late you don't have time to digest the paper

Be exhaustive; list experiments chronologically

Go outside the 9.5-10.5-minute time limit

Forget to cite the paper

Say "we did this"

Use illegible labels

DO

Give yourself time to read the paper 2-3x

Be selective; tell a story

Practice until you know you can hit the time limit

Include citation in your title slide

"The authors did this"

Use ≥ 20 pt font

Make your own labels for figures as necessary

Use legible font colors

Skills we'll discuss today

1. Crafting a story
2. Identifying key parts of a scientific work
3. Slide design
4. Oral presentation

Additional help

- Practice your presentation with a Communication Fellow
<http://be.mit.edu/becommunicationlab>
- Susan McConnell (Stanford), *Designing effective scientific presentations*
<https://youtu.be/Hp7Id3Yb9XQ>

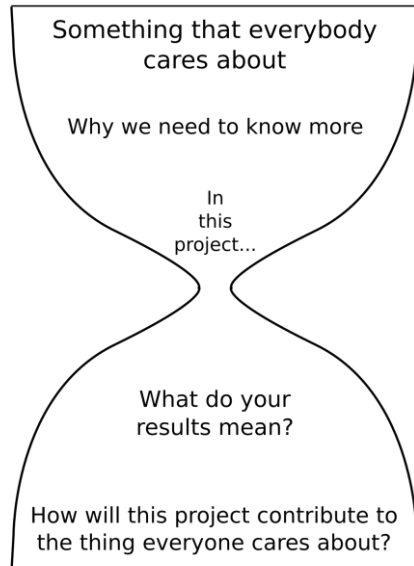
1. Craft a story

“Excellent students tell a story.” -Noreen

You only have 10 minutes for your journal club presentation.

What content would you include?

Recall the Hourglass Model for Abstracts



Introduction	<ul style="list-style-type: none"> introduce yourself and credit the authors of the paper clear and concise description of the central question addressed by the paper, <i>and</i> its significance contains sufficient background needed to understand the results 	(15)
Methods	<ul style="list-style-type: none"> gives information necessary (and no more!) to understand results shows overview of experimental flow/approach if appropriate 	(10)
Data	<ul style="list-style-type: none"> related to central question complete and concise explanations integrated results + discussion 	(30)
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Chronological confuses



The authors wanted to engineer a calcium sensor's binding sensitivity.

They ligated DNA into a plasmid,

then they transformed it into cells,

and then they looked at fluorescence data.

But WHY?

Storytelling conveys logic & motivation



The authors wanted to engineer a calcium sensor's binding sensitivity.

To change the binding site, they did site-directed mutagenesis,

then they expressed the mutant protein in cells,

and then they assessed its binding properties with a fluorescent assay.

Tell a story



- Identify the question/message
- Include only essential results
- Connect all results back to the question/message
- Use titles & transitions that explain logic & motivation

2. Identifying the key parts of a scientific work

Activity: Presenting Allalunis-Turner, *et al.*

Which 2-3 figures (or parts of figures) would you choose to present? What is their significance to the main question?

Radiat Res. 1993 Jun;134(3):349-54.

Isolation of two cell lines from a human malignant glioma specimen differing in sensitivity to radiation and chemotherapeutic drugs.

Allalunis-Turner MJ¹, Barron GM, Day RS 3rd, Dobler KD, Mirzayans R.

Author information

Abstract

Two aneuploid cell lines which differ in their inherent sensitivity to ionizing radiation and chemotherapeutic agents were established concurrently from a single tumor specimen obtained from a patient with glioblastoma. M059J cells are approximately 30-fold more sensitive to radiation than are M059K cells (surviving fractions at 2 Gy were 0.02 and 0.64, respectively). This relative difference in radiation sensitivity has remained a stable feature of the cell lines during 2 years in continuous culture. In addition, cells of the M059J line are more sensitive than those of the M059K line to the cytotoxic effects of bleomycin, N,N-bis(2-chloroethyl)-N-nitrosourea, and nitrogen mustard. These cell lines may prove to provide a useful model system for evaluating the cellular and molecular processes which confer resistance or sensitivity in cancer treatment.

3. Slide design

Overall effectiveness of slides (text and visuals)	<ul style="list-style-type: none">• slide titles convey key message• good balance of text and figures• text/figures large enough to be seen (including axis labels!)• considered use of color• not too many or too few slides	15
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Slide design: use the same principles as figure design

- Titles = take-home message
- Show minimal essential data
- Avoid clutter

Simplify & break up figures to avoid overwhelming your audience.

Example: converting a paper figure
to a presentation figure

Susan McConnell (Stanford), *Designing
effective scientific presentations*

<https://youtu.be/Hp7ld3Yb9XQ>

(start at 19:09)

Skills demonstrated

- Title = take-home message
- Show minimal essential data
- Remove clutter, improve clarity
 - Separate/mask panels
 - Add/remove labels
- Effective redundancy: align visual, written, & oral

“What would help my audience understand this faster?”

Titles = take-home message

DON'T		DO
<i>General heading only</i>	<i>Descriptive</i>	<i>Take-home message; "so what?"</i>
Methods	EMK-1 Knockdown	EMK1/Par1 was knocked down in MDCK (kidney) cells using siRNA
Results	Ca-switch	MDCK cells form a lumen after changing extracellular $[Ca^{+2}]$
	Mitochondrial ROS induction in cell lines	Mitochondrial ROS induction is decreased in adk- cells
	Comparison of primer specificity	Primer 1 is better than Primer 2 at differentiating closely-related HIV strains

Avoid light, bright font colors.

Am I legible?

Am I legible?

Am I legible?

Am I legible?

Am I legible?

Am I legible?

Activity: Presenting Allalunis-Turner, *et al.*

Pick one figure and break it down as you would for a slide.

- Title = take-home message
- Show minimal essential data
- Remove clutter, improve clarity
 - Separate/mask panels
 - Add/remove labels
- Effective redundancy: align visual, written, & oral

“What would help my audience understand this faster?”

4. Oral presentation skills

Overall effectiveness of delivery	<ul style="list-style-type: none">• confident, enthusiastic delivery• main points verbally emphasized• get to main points quickly• strong eye contact• limited gestures• use of both technical and informal language as appropriate• 10' length (+/- 0.5 min)	10
Q&A	<ul style="list-style-type: none">• answers that convey understanding• when you lack knowledge, tell how you would approach the question based on what you <i>do</i> know	(5)

Additional help

- Practice your presentation with a Communication Fellow
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