What is the research question / goal?



Section	Minutes	Number of slides	DO	DON'T
Introduction	~2	2-3	 Introduce the key concepts that the audience will need to follow your presentation. Briefly state the overall scope and significance of the study what is the central question and why is it interesting? Try to summarize background material with a model slide rather than lines of text. If text is needed, bring in the details as you speak using PowerPoint animation. 	 Don't assume you are addressing an expert audience. Don't give more information than is absolutely needed to understand the rest of your talk. Don't put too much information on each slide.
Data	~7	4-6	 Present the data in a logical sequence, letting each slide build upon the previous ones. Include a title for each slide. The title should be the conclusion and should be unique to the information on the slide. Make every element of your slide visible to the entire room. This means 20-point font or greater. Interpret each slide thoroughly and carefully. Point out strengths and weaknesses of the data along the way. 	 Don't read your talk. Similarly, do not read lists from slides. Don't put much information on each slide. Each slide should make only one point. Never say, "I know you can't read this, but". Everything on each slide should be legible. Don't be afraid to remind the audience how the data fits into the overall question
Summary	~1	1	 Review each of your main messages. Clearly state what the study contributed to the field. 	 Don't repeat experimental details.
Question & Answer	?	0	 Answer the question being asked. If you are unclear about the question, ask for clarification. Respect every question and questioner. 	 Don't take too long with one question. If the discussion is involved, suggest meeting after the talk to discuss it more.

When presenting figures, consider...

- 1. How you will represent the figure / information on the slide.
- 2. How you will verbally introduce the data.
- 3. How you will explain the results.
- 4. How you will highlight the key conclusion (using the data!).
- 5. How the key conclusion relates to the research question / goal.
- 6. How the key conclusion relates to the next slide / figure.

Keep in mind that the complexity / importance of the data will determine the length of time needed to explain the results!

Exercise: figure presentation practice

- Craft a slide(s) that represents the data in your figure.
- Consider what information should be included on the slide and what information should be delivered verbally.
- Draft the script that will accompany your slide.
- Present your figure to the class!



Multiple Gene Repression in Cyanobacteria Using CRISPRi

Lun Yao, Ivana Cengic, Josefine Anfeldt, and Elton P. Hudson

Presented by Fa19 20.109

ACS Synthetic Biology. 2016. 5:207-212

CRISPi targeting coding region effectively represses GFP in *Synechocystis*



- WT has no GFP
- dCas9, sgRNA and GFP integrated into the genome and constitutively expressed

Notes on Figure 1:

- Good explanation of gene schematic and data
- Bullets helpful, could perhaps include bullet with transition to next data slide
 - Also, second bullet could be shortened to: "dCas9 and sgRNAs constitutively expressed from genome." That it was integrated is implied here.
- Be mindful of spelling errors 🙂

Inducible and reversible repression of GFP by CRISPRi under PL22 promoter



Notes on Figure 2:

- Would be helpful to more fully walkthrough the GFP expression data (what specifically is shown on the x-axis?).
 - Perhaps only include the bars / data that are necessary to understand the next panel and other data in the presentation.
- To focus audience attention can only show first panel, discuss, then animate in second panel, discuss.
- Include helpful labeling...what do the arrows represent in the second panel?

phaE Knockdown Blocks PHB Production



Notes on Figure 3, Slide 1:

- Good that data logically separated into two slides.
- Omit panel labels as only provides information in context of the caption.
- Including labeling on right panel helpful; however, make sure experimental conditions are accurately represented.
 - Also, feel free to improve existing labeling...the PHB label is ambiguously located and could be shifted right over the appropriate peak.
- Be prepared for questions concerning the methods used to generate the data shown! How does Nile Red fluorescence indicate the presence of PHB in a sample?

Inducible glgC Knockdown Produces Glycogen-Deficient Phenotype



Notes on Figure 3, Slide 2:

- Arrows can be helpful in highlighting data / relationships; however, should use sparingly as can be distracting.
 - Specifically, the arrow at the top of the right panel...perhaps include this point about the data as a bullet on the slide.
- Data was described well, but it is best to keep the axis information on the slide with the figure(s).

Multiplex Repression shows comparable reduction of mRNA levels as Individual Knockdowns



Notes on Figure 4:

- Consider a more straightforward / clear title...possibly present the figures on separate slides so titles can be more specific.
 - Another option is to show the left panel (with specific title), discuss, then animate in right panel (with new specific title), discuss.
- Be sure to fully explain the legend labels so the data is clear / understandable.
 - Which sgRNAs included in the 3 and 4 conditions? And what does this mean given the data shown in the graph...specifically in the slr0091 sample.

Final thoughts:

- It is okay to include some text / bullets on your slides.
 - Consider key information that the audience might miss during the verbal delivery
 - Things that can be helpful to include: 1) method / output (ie what was measured?), 2) key take-home not already in the title, 3) transition to next slide.
- It is okay to add labeling to the figures such that the information is clear.
- It is okay to omit data / panels as long as the results are not altered or otherwise misrepresented.