

20.109: BE Communication Lab Quick Guide to Making Figures

Before designing your figure, decide what **take-home message** (conclusion) you want to convey with your data.

Make sure that all your design choices help your audience to access and evaluate that message as easily as possible.

Essential steps and components

1. Choose your data

Include only data that are critical to take-home message

2. Compose your title

- 1 sentence that follows "Fig. 1." Usually present tense.
- States the message as a complete sentence.

3. Choose how to present your data.

- Allow readers to quickly evaluate your conclusions, without referring to legends or the caption.
- Clearly label each element: axes, data series, etc.
 - *Exception:* Error bars are usually explained in the caption, not labeled.
- Avoid clutter.

4. Write your caption.

- Caption = all of the text that follows the title. Usually past tense.
- Descriptive, not interpretive: say what you *did*, not what it means.
- Only enough methodological detail to make it clear how results were obtained.
- If you have multiple panels (Fig. 2A, Fig. 2B...), each panel should be discussed in the caption.

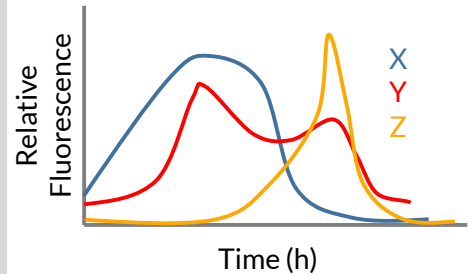
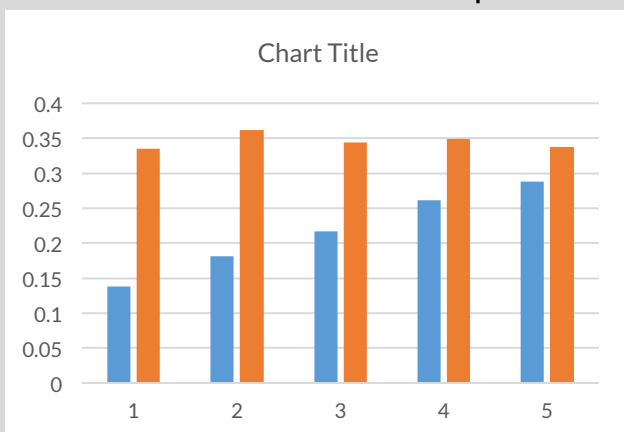


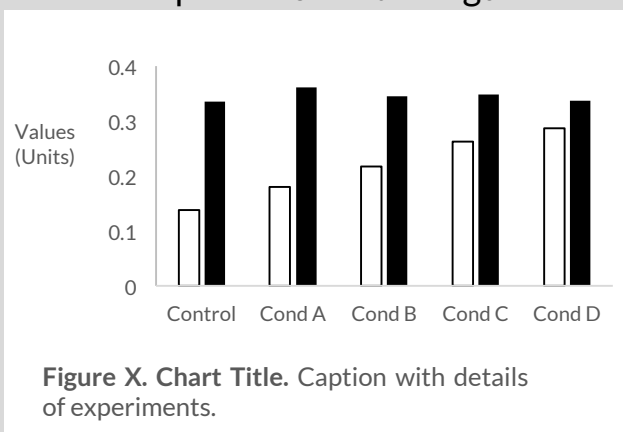
Fig. 1: X, Y, and Z have different dynamics when treated with Method 1. X, Y, and Z were prepared using Method 1 and their fluorescence quantified with Method 2. Fluorescence data were normalized to negative control.

When making your figure, don't settle for the software defaults!

default Excel output



improved scientific figure



- Remove gridlines, format axes, change line weights, add error bars as needed.
- Use only as many colors as necessary to convey meaning. Change default colors as necessary, avoiding red/green and patterns.
- Add chart labels, make sure they are legible and placed near the element they refer to.
- Avoid a separate legend if possible, labels are clearer.
- Avoid unnecessary 3D graphics and other distracting visual elements.