

ASTR21200

Observational Techniques in Astrophysics
Class Presentations

Bradford Benson

Lab-3: Design your own observing project

- For Lab-3, you're going to pick your own project!
- Feel free to think outside the box, but I might suggest some projects (see later slides which suggest starting point ideas)
- ***Final lab report*** can be in style of Jupyter notebook or Latex-style paper, with each group member submitting their own lab report!
 - Note: In either case, you will need to add more text than previous labs explaining the project with a reasonable structure that mirrors a scientific paper:
 - 1) Intro, 2) Data and Observations, 3) Data Analysis, 4) Discussion, 5) Conclusions
 - **Final Lab Report will be due by 11:59pm on Thursday May 16**
- ***Group "Presentation"*** about your Lab-3 results
 - Intended to mimic the type of presentation that you might give at a scientific conference, and share what you came up with to the rest of the class.
 - I will give you more suggestions / instructions / advice about this during lecture in 2-weeks
 - Plan for 15-min presentation plus 5-min for questions, trading off sections across your group members.
 - **Group presentations will take place Friday May 24 from 3-5pm (during "Finals week")**

Presentation Structure

- **0) Title Slide**

- Be descriptive about your topic in the title, e.g.,
 - No: “ASTR212 Final Presentation”
 - Ok: “*A Measurement of the Hubble Constant using the Angular Size of Local Galaxies*”
- Speaker name(s) (with affiliation)
- Give co-authors
- Include a pretty picture relevant for your talk
- Good to include affiliation logo, maybe funding source, but that also might come later.

Presentation Structure

- **1) Introduction**
 - Present the big picture
 - Introduce the main concepts
 - Describe your target(s)
 - Summarize previous work
 - Clearly state the question(s) that your project addresses

Presentation Structure

- **2) Data and Observations**
 - Important information about the observations, e.g.,
 - Did you observe multiple objects, was it a time-variable observation, etc.
 - Date(s) of observations
 - Filter bands

Presentation Structure

- **3) Data Analysis**
 - “Basic” data reduction does not need to be explained (but can be mentioned), e.g., by now, we know the basic calibration steps (bias, dark, flat field)
 - Describe analysis choices, e.g., light curve binning, estimates of uncertainties, etc.
 - Describe measurements clearly, e.g., transit depth, luminosity, etc.

Presentation Structure

- **4) Discussion**

- Inferred physics and interpretation
 - e.g., mass / density of planet, luminosity distance, etc.
 - Comparison to expectations and/or literature
- Systematic uncertainties
 - Discussion of what limited your measurement
- Next steps
 - What could be improved in future measurements? What additional measurements could you do?
 - What might be a sensible future topic, or set of additional observations? Are there more objects that you would like to observe, or compare, to?

Presentation Structure

- **5) Conclusions**
 - Summarize the main points / conclusions / results that you want your audience to take away
 - Reiterate next steps, future work, etc.

How to give a good talk

- Know your audience!
- Aim: everyone should get something out of your talk
 - Include enough background information
 - Avoid too much jargon
 - If needed, define any abbreviations / jargon early!
 - Avoid too many equations
 - Tell a coherent story

How to give a good talk

- Slides: think of them as visual aids to tell your story
 - Assume ~1 minute / slide
 - Don't put too much “stuff” on one slide
 - Include relevant **pictures** and **figures**
 - You should speak about everything on the slide. Do not include unnecessary figures, images, or text that isn't relevant to what you are going to verbally talk about
 - Prefer concise keywords or bullet points, to full sentences (and no paragraphs)
 - Make everything legible (e.g., use big fonts for your axis/plot labels)
 - Use color and font style / size to highlight points, but don't overdo it!
 - Don't use **yellow**, **light green**, or other low-contrast colors

How to give a good talk

- Speaking:
 - Don't speak too fast
 - Prepare not just your slides, but also what you will say
 - ... but don't memorize your talk, speak freely
 - Your tone and articulation play an important part in conveying your story.
 - Engage your audience - make eye contact
 - Avoid too many “Umm's”, better to pause
 - Verbally practice your talk more than once! It's important to verbally talk through what you are going to say on each slide, so that you efficiently and logically / clearly talk through the slides.

Extras