

UCF Physics: AST 5765/4762: (Advanced) Astronomical Data Analysis

Fall 2019 Homework 12

Due Thursday 5 November 2019

Work:

Become sufficiently familiar with data presentation to:

1. Understand how audience, medium, topic, and time affect choices in plotting and other forms of data presentation.
2. Know the role of each section of a research paper.
3. Know how researchers present and defend their claims.
4. Know when and how to use references.
5. Know what belongs in a caption, and what belongs in text.

Resources:

1. 2 papers (including Deming et al. 2005, *Nature* 434, 740) OR 5 posters and 5 oral presentations (for students attending a scientific meeting).

Hand in:

Write a series of SHORT answers (sentence fragments, lists, a few sentences) to each question for each paper or presentation. Don't write pages and pages. Just write evidence that you've thought seriously about each question for each item.

Hand this in as a single PDF file named `hw12_(username).pdf`.

• Those at UCF this week (or elsewhere, but not at a conference):

Read the paper by Deming et al., and one other paper of your choosing, in any field. It can be short, but it needs to be a paper in a refereed scientific journal presenting scientific research (not a review paper, book review, etc.). Come to class prepared to discuss both. It can be a paper you've read before, but not one you were on or involved in. For each paper, answer:

1. (1 point) What are the journal citation, title, authors?
2. (5 points) What was the arc (storyline) of the presentation?
3. (5 points) What are the main claims of the authors?
4. (5 points) How do the authors support those claims?
5. (3 points) What should a reasonable person be skeptical about, and how does the paper address those concerns?
6. (2 points) What does the introduction deliver that is necessary to understand the rest of the paper (why not just dive into the data or theory)?

7. (3 points) How are the abstract and conclusions different?
8. (1 points) What are 3 things that need a reference?
9. (1 points) How do the authors use references to shorten the paper?
10. (1 points) Did the authors acknowledge the funding, data, and software sources?

● **Those at a conference this week:**

Visit at least 5 talks and 5 posters with their presenters present (list all). Include photographs of the posters. For two of them, answer:

1. (1 point) What are the presentation number, title, authors (cut-and-paste from program)? Is it oral or poster?
2. (5 points) What was the arc (storyline) of the presentation?
3. (5 points) What are the main claims of the authors?
4. (5 points) How do the authors support those claims?
5. (3 points) What should a reasonable person be skeptical about, and how does the paper address those concerns?
6. (1 points) Was there any text you could not easily read?
7. (1 points) Could you read and understand the plots easily?
8. (1 points) How did the presenter's voice affect your impression of the presentation?
9. (1 points) How did the presenter's appearance affect your impression of the presentation?
10. (1 points) Did the presenter acknowledge the funding, data, and software sources?

For oral:

11. (1 points) Did slides go by too fast?
12. (1 points) Was the time used well?
13. (1 points) How well did the person use the pointer (steady or "scribbling")?

For poster:

14. (1 points) Was there too much or not enough text?
15. (1 points) Was the amount of content appropriate for the space?
16. (1 points) Did the layout visually lead your eyes through material presenting the argument?