# 36-764: Writing in Statistics
# Spring 2016 (Mini 3)

TTh 3:00 - 4:20, WEH 4709
https://cmu.instructure.com/courses/8

**Course Information**


*Instructor:*
Brian Junker, Statistics
132E Baker Hall
268-8874
brian@stat.cmu.edu

*TA:*
(none)


*Office Hours (BH 132E):*
Immediately after class
*(or by appointment).*

**Prerequisites**

There are no formal prerequisites for this class. You are expected to be working on a technical writing project suitable to the class (something like a thesis chapter, thesis proposal, ADA report, grant proposal, paper for a journal, etc.), and be willing to share your writing in that project for peer review, and work on it as part of your work for this class.

- You do not have to be a Statistics student. You should, however, be familiar with technical matters in Statistics at a graduate level.
- You do not have to be a native speaker of English. Most of our discussion of mechanics (grammar, usage, style) will happen on an as-needed basis, but I will also suggest at least some resources for non-native speakers.

**About Me**

This course is an experiment. I have advised many people – undergraduates, Masters and PhD candidates, postdoctoral fellows, and others – on their writing. I've developed some insights about technical writing over time, that not only agree with some of the literature on technical writing, they also seem to help people write better. This course is my attempt to better understand and communicate some of these insights.

There is no one correct way to write. But there are things you can do that tend to make it difficult for a reader to absorb the ideas you are writing about, or make it easier for the reader. Thus, it is important to focus on the reader, and the constraints and habits of mind that most readers (even in the rarefied population of academics who can understand the technical details of your work) bring to the task of reading what you have written. This is a central idea in my thinking about writing.

### What will be in the course

My goals for you (and me!) in this course are

- To understand that writing requires an intellectual investment similar to the investment that you put into other areas of your research, from developing research questions, data collection, and data analysis, to writing and testing algorithms, and formulating and proving theorems.
- To understand ways of organizing your writing that make it more likely that the reader will interpret and understand your ideas *in the way that you intend*.
- To gain experience writing with these ideas in mind.

Most classes will be divided between talking about general ideas, and "workshopping". There is no required textbook, but I will ask you to read some articles, book chapters, and web resources on writing. Of course you will also be doing some writing, and thinking about writing—your own, and others'.

To facilitate peer review and other ways of considering writing together, we will be trying out a new course management system that the Eberly Center is considering, called "Canvas" The web address is https://cmu.instructure.com. If you have not already joined the course on Canvas please do so now. If you need an online invitation or are having other difficulties joining the course, let me know.

As time, need and interest permit, we will touch on other some other topics in the course, such as grammar, usage & style, formatting and outlining, tables & graphs, oral presentations & posters, referee reports, grantwriting, ways of approaching writing and writing tasks, etc., but the main focus will be on producing clear, readable, informative technical writing that serves you and serves the reader.

### Grading

Success in this course is improving your writing, and helping others to improve theirs. I will look broadly at your participation and effort in the course, and at whether you have improved as a writer.

I will keep track of most of your work on a "did it / didn't do it" basis in the gradebook. In cases where I want to grade you in a more fine-grained way, I'll let you know what the criteria/rubrics are.

I don't expect the course to be "difficult" but I do expect it to be "effortful".

### Academic Integrity, Disability, Etc.

As members of a top-ranked academic institution, your academic integrity in all matters, but especially in the production of original academic and scientific documents, is assumed and expected. Carnegie Mellon guidelines are listed at http://www.cmu.edu/academic-integrity/; however, I expect each of you to behave well above these lower bounds.

If you have a documented disability that is preventing you from doing the work in this class, please let me know so that we can take whatever steps are needed to accommodate your needs. If I am not able to help, or you have other related questions or concerns, please contact your advisor or a trusted mentor, and/or CMU's Disability Resource Office (http://www.cmu.edu/hr/eos/disability/).

For any other issues or special needs, please contact me, your advisor or a trusted mentor, and/or the Office of the Dean of Student Affairs (http://www.studentaffairs.cmu.edu/dean/).

**Tentative "Schedule"**

It is nearly impossible for me to say how long we will spend on each topic or idea in the class. In a sense, I don't care how much we get through as long as we learn something, get some writing done, and the writing improves throughout the semester. Here is a sketch of topics I hope to cover, in approximately the order I hope to cover them:

- The writer's task. The reader's task. Busy readers, distractions, and attention spans. Reader habits. The beginning, the middle, and the end.
- The sentence, the paragraph, the section, the article. The importance of stories.
- Planning, outlining, organizing. Layered writing. Format. How do you know what is required?
- Appropriate level of detail. Assertions and evidence. Graphs and Figures.
- No surprises. Good mechanics, consistent use of technical language, writing that is unobtrusive but not boring.
- Special topics. To be chosen as time and interest permits. Some possible examples include
  - Referee reports and other feedback that you must deal with.
  - Citation, academic integrity, establishing your contribution
  - Talks and/or Posters
  - Proposals (especially but not only grant proposals)
  - Research and teaching statements for job applications
  - Your curriculum vitae

Remember that I will try to set aside time in each class for workshop work as well.

The class meets every Tuesday and Thursday from January 12 to March 3. I will plan some sort of wrap-up activity for the last week of class (March 1 and 3). I will be out of town Thursday February 25, and will make arrangements for that class closer to the day.

**Books**

There are no required texts for this course. Here, and on the next page, are some books that I have found helpful, or that I have at least considered.

- ***On Academic Writing***

  Gopen, G. D. (2004). *The sense of structure: writing from the reader's perspective.* Longman.

  Gopen is the clearest thinker on academic and scientific writing that I have found.

- ***Style***

  Strunk, W. & White, E. B. (2007). *The elements of style.* Penguin.

  There are not many good style manuals on academic & scientific writing, and nothing at all on style in Statistics. Strunk & White is a general guide to style (not just academic style), it is a classic, and you can either buy hardcopy or find a legal, free pdf online. I also pick and choose information from the *Publication Manual of the American Psychological Association*, and the *Chicago Manual of Style*.

- ***On Scientific Writing***

  Alley, M. (1996). *The craft of scientific writing, 3rd Ed.* Springer Science & Business Media.

  Lebrun, J. L. (2011). *Scientific writing 2.0: a reader and writer's guide.* World Scientific.

  Each of the "how-to" books above has a mixture of advice on grammar, usage, style, format, presentation, etc. Alley is my favorite, but it is aimed at undergraduates and paints with a pretty broad brush, which sometimes turns people off. Lebrun is aimed at graduate students and other young researchers. Lebrun has been somewhat influenced by Gopen, which is good.

- ***For Non-native Speakers of English***

  Glasman, H. (2010). *Science research writing for non-native speakers of English.* Imperial College Press, London.

  This seems like a reasonable "recipe" book, organized according to the sections of a typical empirical research paper. It is also a useful resource for native speakers of English.

- ***On Presentations***

  Alley, M. (2013). The craft of scientific presentations. 2nd Ed. Springer.

  Lebrun, J. L. (2010). When the scientist presents. World Scientific.

  Our friends Alley and Lebrun again. Each of them has a "formula" they like to push for making slides and talks (and the formulae are different).

**Websites**

- George Gopen's website, http://georgegopen.com/, is mostly about his availabilty as a consultant and leader of short courses for hire. There are links to a few good articles as well, though.
- Michael Alley has lots of online resources, at http://www.writing.engr.psu.edu/csw.html. Alley has another website devoted to presentations, at http://www.craftofscientificpresentations.com/.
- Jean-Luc Lebrun keeps a good list of resources, online and otherwise, on his website, under "The Bonus Page" link at http://www.scientific-writing.com. He also has a blog on presentations, at http://scientific-presentations.com/.
- Carnegie Mellon's *Global Communications Center* can consult with you by appointment, on writing, speaking, etc. See http://www.cmu.edu/gcc/HandoutsandResources/index.html for a useful set of online handouts, as well.