

How to be a better scientist

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Motivation for this column

Greetings, ASLO Community! Beginning with this issue, I will be writing a regular column for the *L&O Bulletin* on *How to be a better scientist*. Well, perhaps that is not the best description of this column, but I was aiming for a nice, snappy title to grab your attention. Did it work?

The focus of this column is to provide the ASLO Community with a list of helpful resources (e.g., books, articles) centered around one particular facet of being a great scientist. As an early career scientist, my motivation for writing this article spawned from great mentors that I have had throughout my career who were always able to recommend great books to help me improve in a particular area where I seemed to be struggling. Why not share this approach with the entire ASLO Community?

Rather than identifying these resources myself, I thought that it would be beneficial to draw on the collective expertise of the ASLO Community for recommendations that were critical in their professional development.

Aims for this column

You might be asking yourself, “Doesn’t the *L&O Bulletin* already have a *Book Review* section? How does this differ?” Well, that’s a very insightful question, my friend.

For this column, I have asked ASLO members to write a short paragraph either why they are recommending the book or how it was helpful in improving their scientific toolbox. Unlike the current *Book Review* section, this column will not provide a detailed review of the recommended resources, but will give a small taste of a particular resource that the reader can investigate further to see if it fits their need. Additionally, the recommendations are not restricted by age, allowing those timeless resources to be introduced to new generations of scientists.

This column will not replace the traditional *Book Review* section of the *L&O Bulletin* because they both have different aims to help the ASLO Community identify resources.

While my original vision for this column was to include recommendations of books only, I quickly learned that this was a bit too restrictive, as two of the first recommendations that I received were for an article (the same article!). I guess that if I was going to break the rules at some point, I might as well break them with my first column!

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Focus of this edition

This first edition will focus on a critical aspect of being a scientist that we continually try to improve upon throughout our careers: how to write better, and how to write more. This topic is regularly a focus of student and early career workshops, as well as general working groups, at ASLO meetings. I asked ASLO members of different career stages and across the salty divide for recommendations; the results follow below.

Schimmel, Joshua. 2011. Writing science: how to write papers that get cited and proposals that get funded. Oxford: Oxford University Press.

“Writing Science” by Joshua Schimmel is a practical guide to writing clear, succinct, and effective scientific manuscripts and grant proposals. Schimmel emphasizes that good science writing requires good story telling, and he provides tips for “making a story sticky” or memorable for an audience. Schimmel also classifies different story structure types, providing examples for how to structure a manuscript for Nature versus a niche journal (like *L&O*). After discussing overall story structure, Schimmel focuses on how to structure paragraphs and sentences to gain clarity and precision (including helpful tips for brevity). Each chapter includes exercises to improve your own writing, which is particularly useful if you want to work through this book with fellow scientists (I first read this book in Angela Strecker’s lab meetings!). – Meredith Holgerson, St. Olaf College, Northfield, Minnesota

King, Stephen. 2000. On writing: a memoir of the craft. New York: Scribner.

There is, of course, no shortcut for writing. Unless you count sitting in your chair, consistently writing and re-writing. That’s the magic. But if you are in search of inspiration, I suggest reading Stephen King’s “On Writing: A Memoir of the Craft.” Happily (at least for me) there is nothing scary in this volume. Instead it’s full of practical advice – my favorite being: “If you want to be a writer, you must do two things above all others: read a lot and write a lot.” and his passion and struggles with writing are laid bare. I find such stories helpful because it is a good reminder that even the very best and most prolific had to work at it, and they still do. – Robinson W. Fulweiler, Boston University, Boston, Massachusetts

Gopen, G.D., and J.A. Swan. 1990. The science of scientific writing. American Scientist 78: 550-558. Available at: <https://www.americanscientist.org/blog/the-long-view/the-science-of-scientific-writing>

The article summarizes results from linguistics to help the writer understand what the reader is expecting as well as where and when they are expecting it. Emphasis is on the scale of the sentence or paragraph, scales we often we fail to consider. It really did (and still does) help me improve my writing and I try to implement its recommendations when I have an especially important piece of writing to complete, such as a grant proposal or a manuscript to a “high impact” journal. – Jim Elser, Flathead Lake Biological Station, University of Montana

Hotaling, Scott. 2018. *Publishing papers while keeping everything in balance: practical advice for a productive graduate school experience. Ideas in Ecology and Evolution 11: 35-46.*

This article discusses writing, graduate school, and science and how to balance it. This article emphasizes fantastic specific recommendations rather than general statements of what people should do, starting in graduate school and once you transition to other roles in your career. One thing I especially like is that it is written by an early-career scholar who has obviously developed excellent habits and provides tips on how you can develop those habits as well. There is a lot here, even for less-early career scientists! – Patricia A. Soranno, Michigan State University, East Lansing, Michigan

Additional resources

Looking for some more recent texts on scientific writing? As I was writing this column, I came across an excellent blog post by Laura Falkenburg, ASLO's first Raelyn Cole Editorial Fellow, covering recent texts on scientific writing (<https://aslo.org/blog/reading-about-writing>). Laura has also written several other blog posts that cover this topic, so please feel free to check out the ASLO Blogosphere.

Future editions

Future editions of this column will focus on other tools within a scientist's toolbox, such as data visualization, meeting facilitation, leadership, undergraduate and graduate student mentoring, and innovative teaching methods. For the next edition, I will focus on another aspect of being a better scientist that has received a lot of attention within the ASLO Community: improved scientific communication.

This column is appearing as a trial run in 2019 issues of the *L&O Bulletin*. If you have any thoughts or critiques of this column, or suggestions for additional resources on this topic or for topics to cover in future issues, please feel free to contact me. You can email me at filstrup@aslo.org or tweet me @ctfilstrup. Please be sure to tag the *L&O Bulletin* (#ASLO_Bulletin) in your tweets.