

Leveraging Advisor Support for Writing Success

Dr. Carol Wilusz, Director of Cell & Molecular Biology, Colorado State University

Based on material developed by Dr. Kristina Quynn, Director of CSU Writes



Colorado State University



What kind of
things did you
write before grad
school?



Skills you probably have now

- Basic academic writing in English
 - Essays, lab reports, UG thesis/dissertation/project, poster presentation
- Read and interpret scientific literature
- Receive and incorporate instructor feedback
- Appropriate use of citations
- Manage time to meet class deadlines
- Fluent in “everyday” English including grammar and spelling

Skills you will need to develop

- Proficiency in scientific & professional writing
 - Manuscripts
 - Grant Proposals
 - Abstracts
 - Peer Reviews
 - Cover Letters
 - Emails
 - Protocols
 - CV/Resume
 - Lab notebook
- Writing collaboratively
 - Receiving and incorporating complex feedback from co-authors/advisor
 - Critiquing co-authors’ contributions
- Critical reading of the scientific literature
- Understanding of the publication process
- Setting and meeting own deadlines

As researchers, what factors are important when we write different documents.....

A manuscript?

Protocol?

Lab notebook?

Cover letter for a job?

Grant / Fellowship?

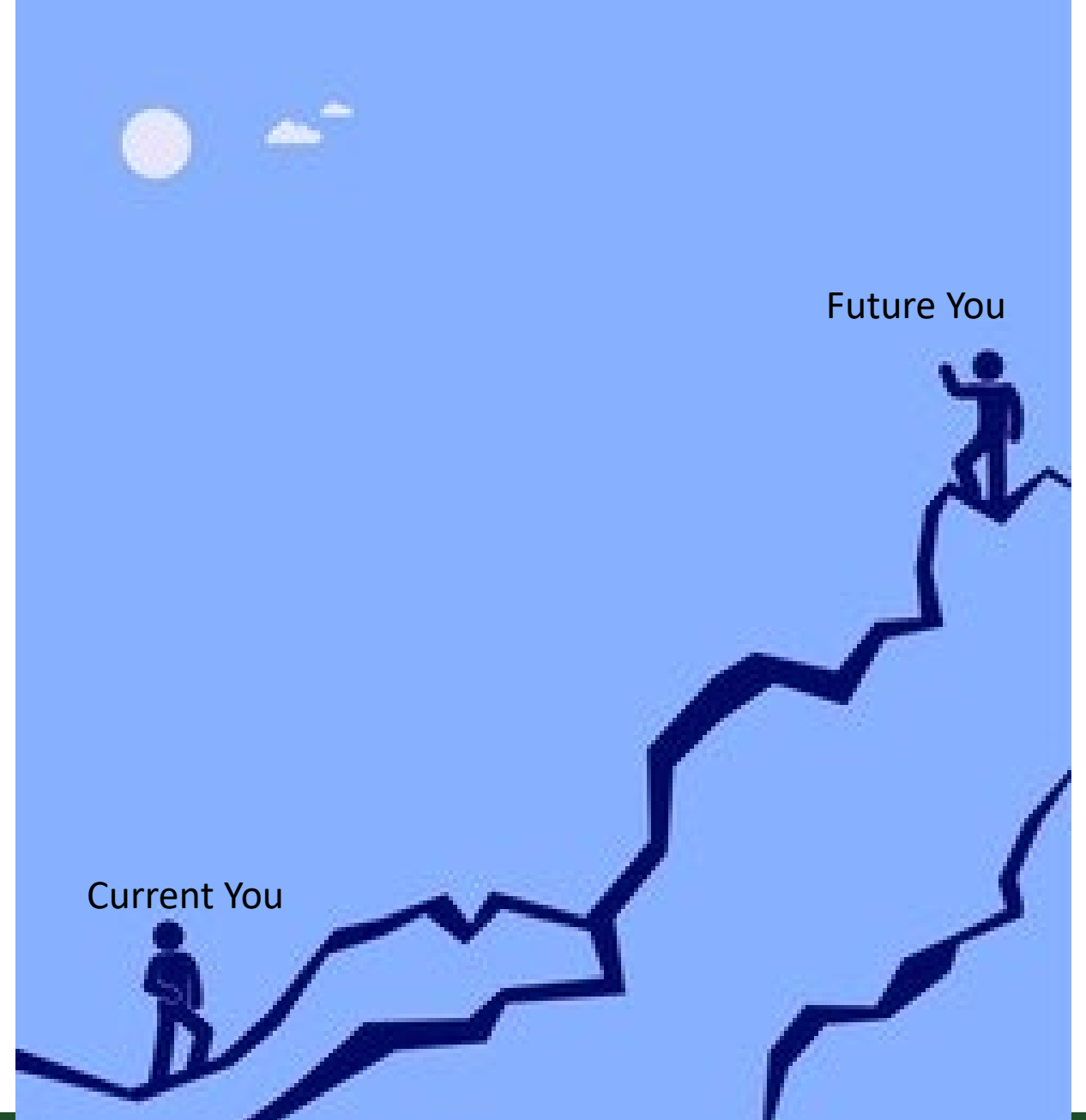
A lot to consider.....

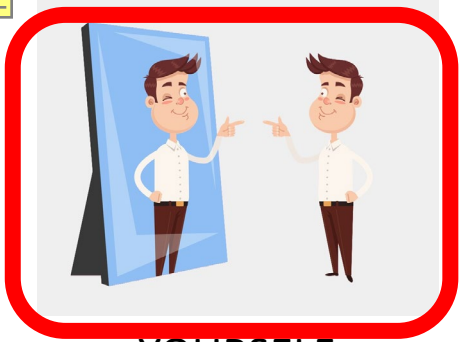
- Grammar and spelling
- Flow / organization
- Accuracy
- Clarity
- Brevity
- Terminology
- Avoiding or defining jargon
- Reporting transparently and without bias
- The audience
- Formatting
- Citations

There's a long way to go!

How will you get there?

What resources do you have?





YOURSELF



YOUR ADVISOR



YOUR LABMATES
& COLLABORATORS



AI, Grammarly, MS Word



Faculty of Science
Charles University
Coursework



Friends & Family



How can you teach yourself how to write?

- **READ, READ, READ**
 - Your lab's papers
 - Your advisor's grants
 - Papers in your field
- BE CRITICAL
 - Dissect the writing as well as the science
 - Can you identify the hypothesis?
 - The knowledge gap?
 - The major findings?
 - If you can't understand it then is it you, or is it the writing?
 - If it's easy to read then what makes it that way?





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**Your advisor may not really know this, but it is
their JOB to teach you how to write!**

From the Doctoral Study Handbook

ARTICLE 4: SUPERVISOR

Note: does not include – teaching you
English, grammar, or spelling

In particular, the supervisor:

4 j: teaches and supervises the student, recommends specialist literature (sources) to him, teaches the student how to communicate in an expert community, how to present the results of his scholarly work to the public (soft skills), and how to acquire financial means to fund his projects, assists him in making contacts with experts locally and abroad and in joining international scientific community, teaches him how to convey knowledge to students, and assists him in his teaching activities set in the individual curriculum.

What makes your advisor the best person to teach you how to write?

- They have a track record of writing and publishing successfully
- They read and evaluate a lot of papers and grants
- They know more than anyone about the topic you are writing about

- Is that enough?



Who has already
experienced writing with
their advisor

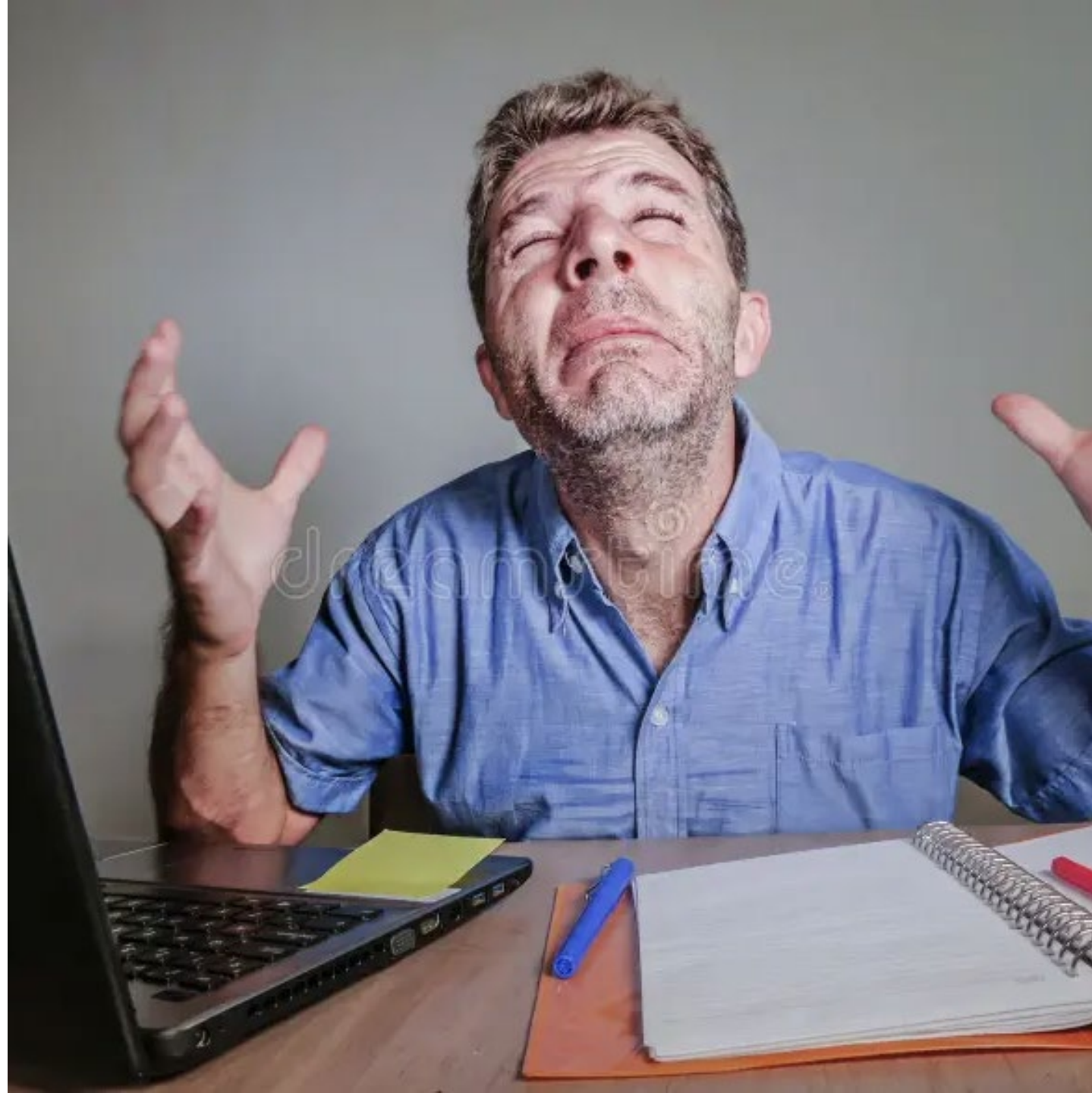
How did that go?
Any challenges?
What did you learn?



You need your advisor to teach you how to write but:

- They are busy with many other responsibilities
- They may have little experience and/or interest in teaching writing

What challenges do you think faculty have when trying to teach graduate students how to write?



Faculty advisors at CSU identified such challenges as

- Frustration with weak foundational writing skills
- Keeping students on track
- Providing timely feedback
- Students not understanding how to tell a story



Additional issues

- making sure students retain ownership
- motivating students to stay focused on the writing process without introducing too much stress/pressure
- fear of being hypercritical
- student failure to meet deadlines
- students expecting to be “spoon-fed” rather than taking ownership of the learning process

- overcoming the desire to just rewrite the document instead of using it as a teaching tool





What additional challenges arise for faculty who have English as a second language when trying to teach graduate students how to write (in English)?



You need your advisor to teach you how to write but:

- They are busy with many other responsibilities
- They may have little experience and/or interest in teaching writing

What can you do to make it easier?



YOURSELF



YOUR ADVISOR



YOUR LABMATES
& COLLABORATORS



USE ALL YOUR RESOURCES



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Friends & Family

Use your Resources WISELY!

 Take a course to learn as much as you can on your own

The Basics

AI or MS
Word

Grammar
Spelling
Word choice

Overall Feel

Friends
Family

Tone
Imagery
Style

Big Picture

Lab mates

Organization
Clarity

Expert / Field Specific

Advisor
Collaborators

Scope
Accuracy
Context
Argument

Mentoring Up (aka helping your advisor help you!)

Self-Awareness Understand your own communication style, strengths, and weaknesses. This helps you interact more effectively with your mentor

Proactive Communication Take the initiative to communicate your goals, expectations, and progress. Don't wait for your mentor to reach out

Mutual Understanding Strive to understand your mentor's expectations and working style. This fosters a more productive and harmonious relationship

Adaptability Be flexible and willing to adapt your approach based on your mentor's feedback and the evolving nature of your research

Responsibility Take responsibility for your own learning and development. Actively seek out resources and opportunities to grow

Feedback Integration Actively seek and integrate feedback from your mentor to improve your work and skills

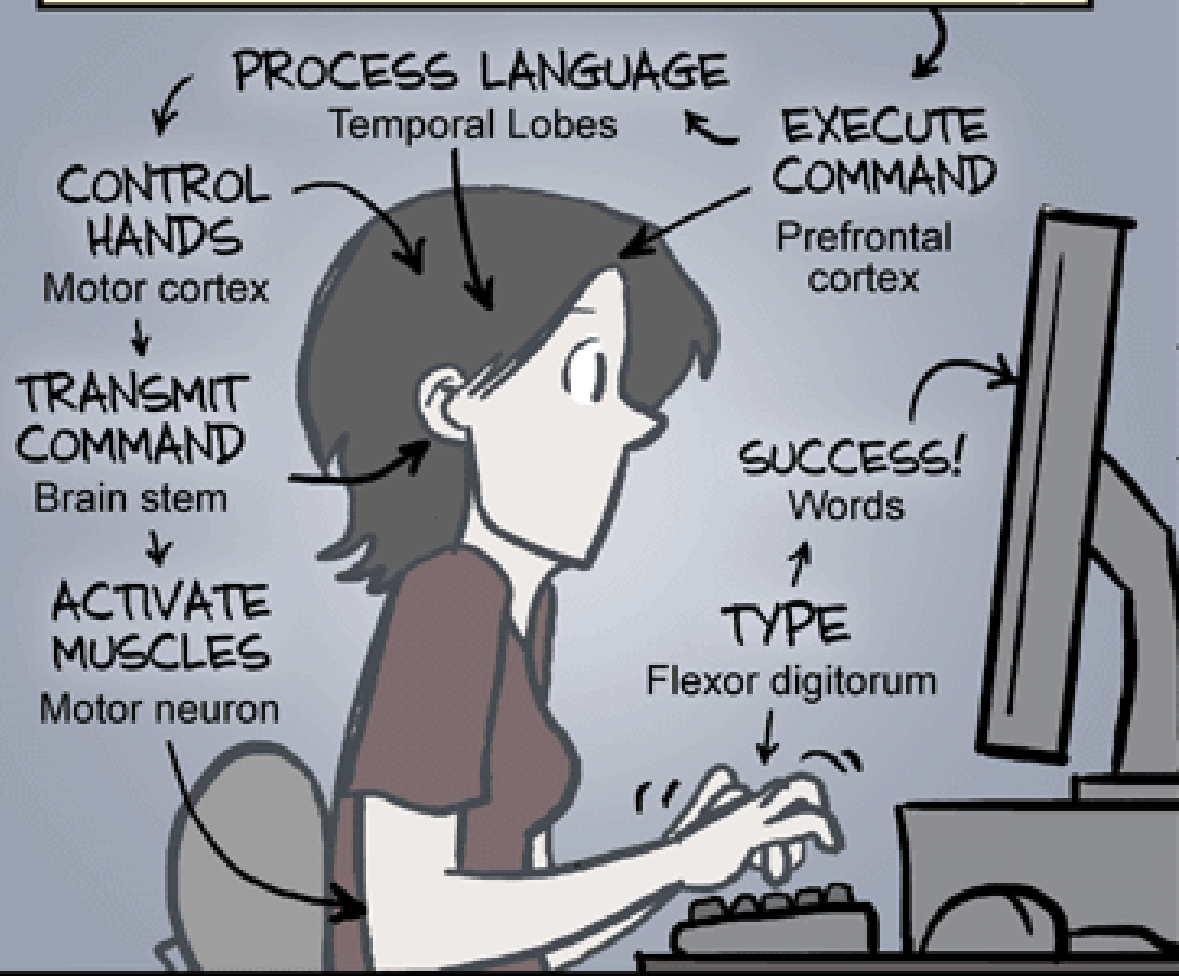
Summarized by MS CoPilot from “Mentoring Up”: Learning to Manage Your Mentoring Relationships by Lee, McGee, Pfund & Bradshaw <https://graduateschool.syr.edu/wp-content/uploads/2017/03/Lee-et-al..pdf>

More later on this....

- Let's get back to the challenges students experience with writing.....

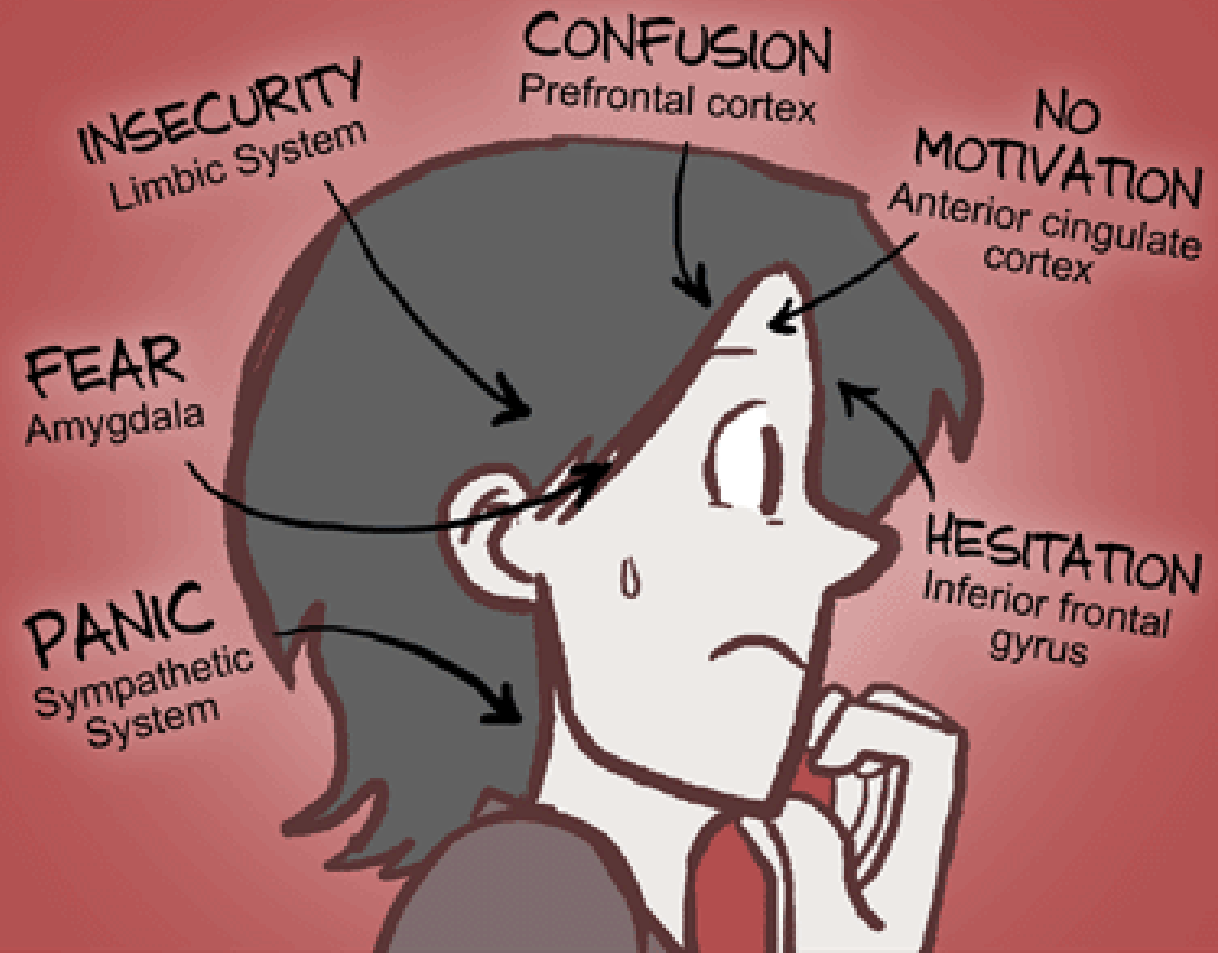
THE NEUROBIOLOGY OF WRITING

HOW IT'S SUPPOSED TO WORK:



JORGE CHAM © 2014

HOW IT USUALLY WORKS:





JORGE CHAM © 2014

WWW.PHDCOMICS.COM

Writing as a Grad Student



Grad Students at CSU identified these challenges:

- productivity
- writing succinctly
- collaborating effectively—
incorporating feedback and
blending writing styles.





Students also pointed specifically to:

Issues arising from:

- (mis)interpreting expectations
- differences in writing styles
- managing anxiety

Collaboration challenges:

- Obtaining quality constructive feedback
- Putting together multiple styles of writing
- Compromising with collaborators

Desired skills:

- writing more quickly
- writing to the appropriate audience
- staying motivated
- writing succinctly with clarity

What additional challenges arise from having to write in your second language?

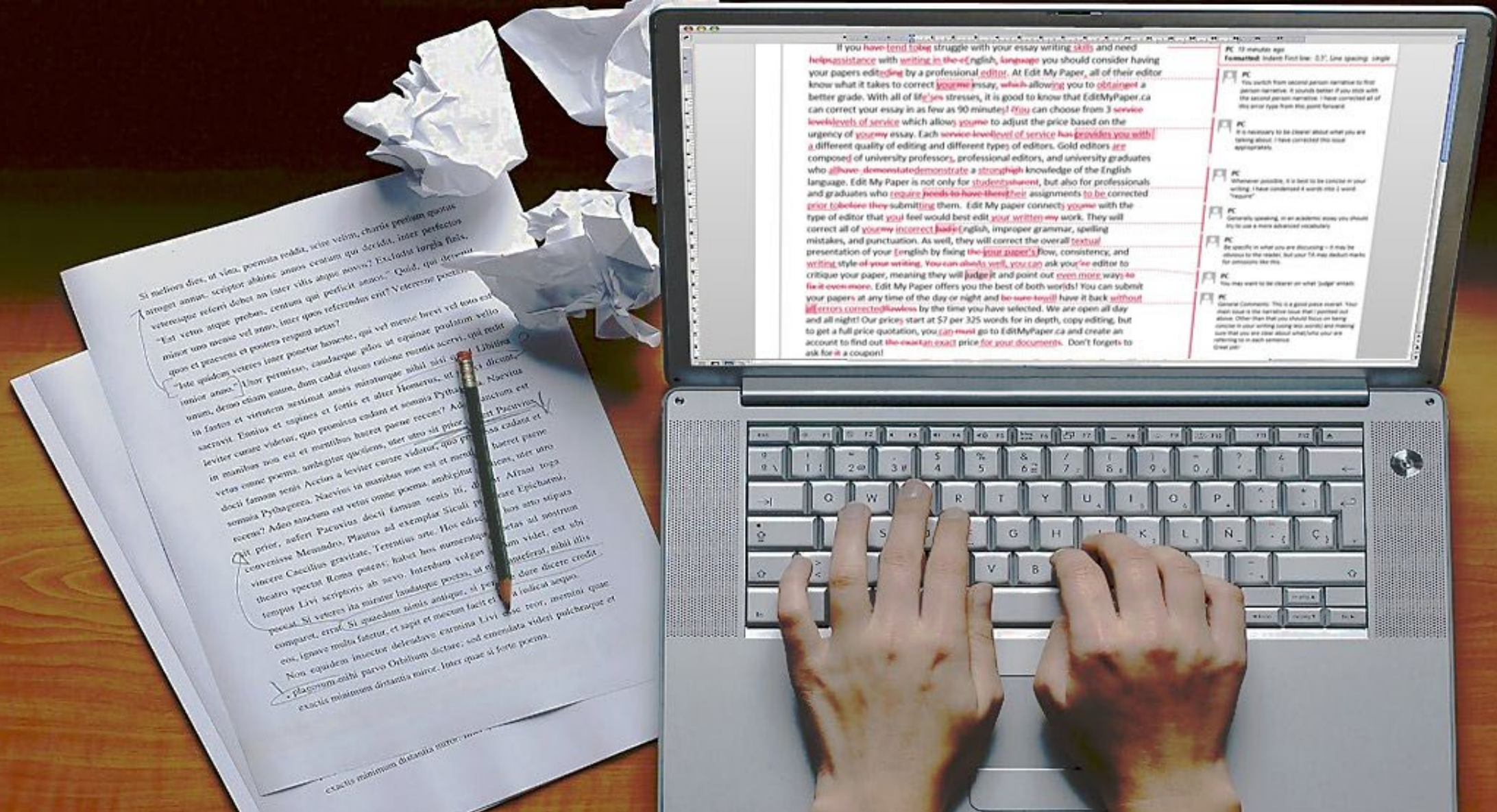


- Limited vocabulary
- Grammar and syntax
- Cultural Differences
 - idioms, slang, interpretation
- Confidence / anxiety
- Feedback comprehension





How students think faculty write



How faculty actually write

Writing science is a SLOW, ITERATIVE and DIFFICULT process, **even for faculty**

- Conveying complex ideas in an accessible way requires multiple rounds of editing
- Incorporating prior knowledge requires gathering and synthesizing information
- High standards to meet due to peer review process
- Anxiety / fear of rejection / perfectionism
- Additional challenges of writing in English

Discuss expectations before you start writing anything!

- Timeline / deadlines
- Your roles and responsibilities
- Stages, frequency, type and format (oral/written) of feedback
 - Make figures
 - Agree on order of figures
 - Write results section up to end of first figure
 - Write results up to end of 3rd figure
 - Complete results section

How much are they willing to help you?

Ask for your advisor's preferences and **PAY ATTENTION!**

Check in often to make sure you are on the right track!

Meet the deadlines you agreed to!

Types of Feedback

Which type do you learn most from?

Corrective—Reviewer makes corrections on the page; writer does little.

Directive—Reviewer points out specific problems and offers specific suggestions; writer must apply the suggestions.

Interactive—Reviewer talks to the writer about the text, offers commentary; writer goes back and applies suggestions

Which type is most work for your advisor?

Evaluative—Reviewer makes a judgement call; writer may learn from comments, address negative comments, or ignore comments.

(modified from: Purdue, *Writing Lab*)

Suggested a new approach and asked questions to give some guidance.

Introduction:

Myotonic Dystrophy Type 1 (DM1) is caused by expansion of a CTG repeat within the 3'UTR of the Dystrophin Myotonia Protein Kinase (DMPK) gene. CUG repeat-containing RNAs accumulate in nuclear foci and sequester RNA-binding proteins such as the splicing factor Muscleblind (MBNL1). This leads to changes in gene expression that can be directly connected to pathogenesis. Currently, there is no treatment or cure for DM1 although several pre-clinical therapies are aimed at destroying the toxic RNA and/or disrupting MBNL1 association.

Method:

We established a Tet-off C2C12 mouse myoblast model to study the metabolism of DMPK reporter mRNAs containing 0 or ~700 CUG repeats in the 3'UTR. We utilized qRT-PCR and northern blotting to assess the pathway and rate of decay of DMPK reporter mRNAs following depletion of mRNA decay factors by RNA interference. Finally, live cell imaging allowed us to assess turnover of the CUG repeat region.

Just corrected the writing with no explanation

Wilusz,Carol

June 05, 2017

This is all obvious to the audience here|– everyone would have the same introduction. You can skip all of this and focus on what your driving questions are – mainly regarding decay etc. Maybe talk about steps of decay a little bit?

Wilusz,Carol

Deleted: have

Wilusz,Carol

Deleted: new, controllable Tet-off

Wilusz,Carol

Deleted: cell culture

Wilusz,Carol

Deleted: CUG-repeat containing

Wilusz,Carol

Deleted: RNA

Would you be ok with getting this kind of feedback?

If you don't want this to happen, you need to take some responsibility.....



Respect your advisor's time

- Correct your spelling and grammar before you sent it
- Learn their pet peeves and **stop peeving them!**
- Give them time to be thoughtful and constructive with their feedback
- Be clear about what level of feedback you need!



What is a good “low-stakes” writing project to start your training with?

- Something YOU care about, but your advisor doesn't care too much about
- Something short or that can be broken down into smaller chunks
 - GAUK application
 - Abstract for a national or local meeting
 - Local poster presentation
 - Lab notebook entry

General advice for **receiving** feedback

- Take a deep breath
- Review with curiosity
- Track—spreadsheet, table, notebook for comments
- Consider patterns
- Ask questions
- Notice strengths
- Express gratitude
- Revise with intention (avoid "accept all")
- Be specific about what level of feedback you need (Cover letter)

Include a “cover letter”

When submitting a draft to a mentor, graduate students can help facilitate a smooth feedback process by submitting with a cover letter that outlines:

1. what the draft is about
2. what went well
3. what still requires work or where reader feedback will be most helpful



Dear Dr Manning,

Thank you for agreeing to provide feedback on the OUTLINE of my manuscript. I believe I have listed the necessary sections and results, but I would appreciate your guidance as to whether the way I have organized the figures is logical and will result in a good story.

What does constructive feedback look like?

- Specific and detailed explanation of edits
- Suggests solutions or asks guiding questions
- Matches the stage of the document, and your stage of training
- Ideally highlights good and bad things

Take Home Messages

- Writing is hard and requires many rounds of editing
- Allow time for you to learn (and for your advisor to teach)
- Use the time you have your advisor's attention wisely
- Be proactive about requesting and understanding feedback
- Practice through reading and writing as much as possible
- Be grateful for the help you get – it's hard for your advisor too!

Additional Resources

Mentoring Research Writers

by Bradley Hughes
Director, the Writing Center and Writing across the Curriculum
Department of English, University of Wisconsin-Madison
bhughes@wisc.edu

Recognizing the Power of Writing as a Component of the Research Process

As a mentor, you have a great opportunity to encourage your trainees to set high goals for their research writing and to help them achieve those goals. You should recognize, in fact, that you have a serious responsibility to motivate and to help researchers-in-training become excellent writers. Why should you and your trainees make writing a priority? The answer is clear to all experienced researchers: researchers earn their living and develop their careers through the writing they do—writing proposals to fund research, writing conference abstracts and posters and papers to disseminate new knowledge and to influence future research and the shape of their fields, documenting their research methods and findings, writing reviews of literature, writing reviews of colleagues' manuscripts, and writing letters of recommendation. Writing pervades the research process, and successful researchers spend a significant amount of their time planning, drafting, and revising complex forms of writing. Experienced researchers also know that writing is not just a way to communicate completed findings and polished arguments; writing is actually a powerful form of thinking and learning, one that clarifies thought and makes analyses and arguments more precise.

Acknowledging the Complexity of Research Writing

In order to appreciate the complexity of research writing and to guide new researchers, mentors need to understand that writing is a highly situated practice—that is, it is not a generic, general skill. Successful researchers need to achieve very specific purposes and speak persuasively to particular groups of readers. What is valued in writing and what is conventional and effective in writing varies across particular scientific communities and even within particular communities of researchers.

As researchers transition from writing within particular disciplines or professions to new ones, they often struggle to write successfully, even if they had success in previous writing situations. Given how varied purposes and audiences are for advanced research writing, as a research mentor, you should have intentional conversations about research writing with your mentees—working on and talking about writing are natural and important parts of training programs, and you should not expect new biomedical researchers to be accomplished writers from the start. Becoming an excellent research writer takes time, effort, and dedicated, consistent mentoring.

Mentors should also remember that researchers-in-training like all students, bring varied literacy backgrounds to each new writing challenge. Some of your research trainees will have done lots of writing and reading, been held to high standards for written communication, and learned to receive and give critical feedback on writing. Others may feel that their intellectual strengths lie in quantitative rather than verbal areas. Some may have great strengths in oral communication rather than academic writing. Others may be multilingual writers, who are very skilled communicators in their first or second languages and who have great cross-cultural linguistic knowledge, but less experience writing and reading English. Some multilingual writers may have internalized

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W. J. Freeman, 2014

Research Writing with Mentors: A Companion Guide for Graduate Student Mentees

Kristina Quynn, Ph.D.
Director CSU Writes
Graduate School, Colorado State University
quynn@colostate.edu

This guide corresponds with Bradley Hughes's advice for faculty advisors in "Mentoring Research Writers" (Entering Research, 2014), in which he describes the complexities of research writing and offers key principles for mentoring graduate students through the process. Hughes reminds us that "writing is not just a way to communicate complete findings and polished arguments; writing is actually a powerful form of thinking and learning, one that clarifies thought and makes analyses and arguments more precise." Put another way, writing is central to all aspects of a researcher's development—in and beyond graduate school. Writing is the very practice by which researchers learn to wield their field, the process by which they connect with other researchers, and the very product they add to specialized and on-going conversations of their disciplinary fields. In some ways, writing is largely inseparable from the research "project". For some disciplines, writing IS the project for graduate students.

Presently, more than 90% of STEM publications are co-authored (the current record is a 5-page report that has 25 pages of authors listed—totaling more than 5,000 author contributors). Barry Bozeman and Jan Youtie surveyed hundreds of published scientists, engineers, mathematicians, and economists, and found that over 94% of their co-authored publications included a graduate student as co-author (Strength in Numbers: The New Science of Team Science, 2017). The days of single-authored articles are largely gone. Graduate students must hone writing skills that include both crafting a professional quality document as well as collaborating with others (a team) on composing and revising documents. In this collaborative context, as a student mentee, much of the writing you do with your faculty mentor will be markedly different than the writing you did for coursework—which served the purpose of demonstrating your mastery of existing knowledge so that you can earn a grade or "pass" the class. When working with your mentor to craft a thesis, abstract, grant proposal or manuscript, you will be encouraged to take the lead in producing the initial drafts and will then be guided through a process (that can feel challenging and deflating at times) of professional development through writing. In this context, you are crafting, creating, and sharing new knowledge.

The writing and reading that students do in graduate school can feel much like the work of learning a new language. The highly specialized and technical language of a field takes time to learn and time to master. Depending on your scientific background and your basic writing skills, you may find that your undergraduate educational experiences prepared you well for graduate-level writing. Or, you may find that your excellent technical or lab skills far exceed your skills technical writing skills. Alternatively, you may be a highly proficient writer in another language but less so in English. While you and your peers have earned the opportunity to pursue a graduate degree, none will start graduate school in the same place. Graduate school, however, is the place all students start building research writing skills in earnest, wherever it is you start from.

Oh, the places you'll go, and the genres you'll know!
Research writing is diverse, in part, because the types of texts (genres) we produce to share findings, talk about new ideas, or promote unique findings, methods, or programs change to suit our changing

CSU Writes 1

Skills Checklist for Competent Scientific Writing

- ☐ **Be Clear and Concise.**
Scientific writing needs to convey complex concepts. Extraneous words and phrases that do not convey useful information should be avoided. Complex words should be avoided if a simpler or more familiar word can convey the same meaning. Sentences should be short and simple. Avoid redundancy, and irrelevant details.
- ☐ **Master Field Specific Vocabulary.**
Each field has its own terms/jargon. It is important to use these words appropriately when writing for the expert (but avoid or define them when writing for a lay audience). Define acronyms.
- ☐ **Be Aware of Expected Document Organization / Structure.**
Most fields have accepted formats for documents like abstracts, manuscripts, reports, grant proposals. Take note of the preferred formats before you start writing!
- ☐ **Appropriate Use of the Passive and Active Voice.**
In general, the active voice is preferred ("We wish to suggest a structure for the salt of deoxyribose nucleic acid"). Methods sections more commonly use the passive voice ("A structure is suggested for the salt of deoxyribose nucleic acid").
- ☐ **Precision and Accuracy.**
Words like "significance" and "correlation" have precise statistical connotations and must be used with care. Be quantitative – "mRNA abundance increased 20-fold" is more informative than "mRNA abundance increased".
- ☐ **Minimize Figurative Language.**
No metaphors, similes, clichés, puns or hyperbole.
- ☐ **Synthesize Information.**
Avoid listing facts from different sources. Summarize and make connections for the reader.
- ☐ **Transitions.**
Make logical connections between ideas and paragraphs.
- ☐ **Citations.**
Know where and how to cite your sources. In general, you should be citing primary research articles. Review articles should only be cited when the topic is tangential to the central theme and they should not be more than 5 years old. Try to avoid listing more than two or three citations to support a single statement. Use a reference manager (Endnote, Zotero, Mendeley).

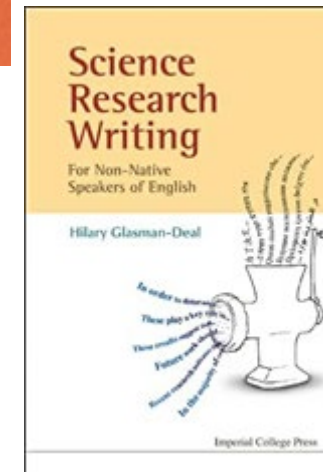
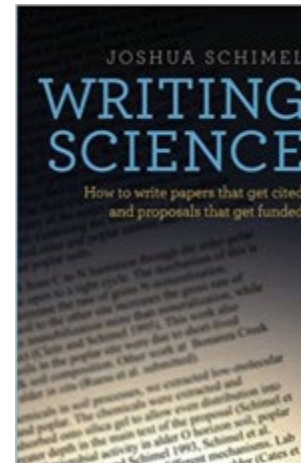
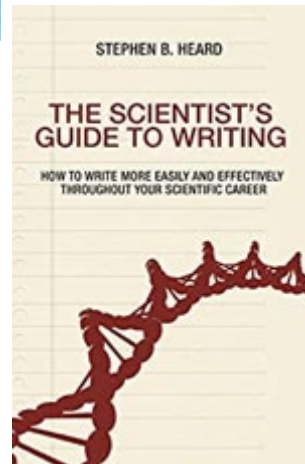
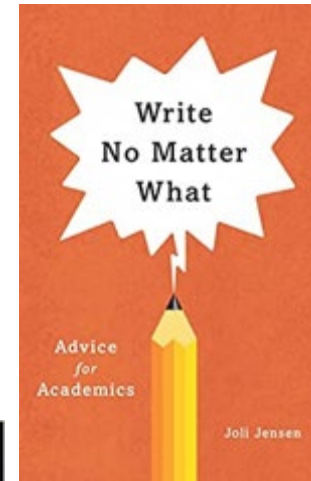
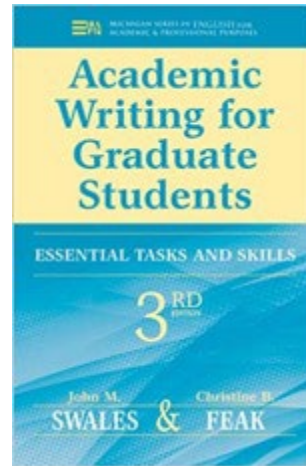
Basic Skills for All Writers

- ☐ Spelling – pay attention to your word processor!
- ☐ Grammar and Punctuation – ditto!
- ☐ Paragraphs – should support/describe one main idea.
- ☐ Verb tense – should be consistent within each section/paragraph.
- ☐ Avoid repetition – use the thesaurus (but see "Be Clear & Concise")
- ☐ Use the right word – affect vs effect, lose vs loose, accept vs except

Resources:

The Writing Center - University of North Carolina - Chapel Hill - Writing in the Sciences <https://writingcenter.unc.edu/tips-and-tools/sciences/>
BioMed Central Editor - Clear Science Writing: Active Voice or Passive Voice? <http://www.biomedcentral.com/active-voice.html>

Useful reads



How to write an essay

Paragraphs and Pigeons

The structure of the paragraph is important for your essay to be

readable and easy to follow.

Writing that

is difficult and messy

is not what you want.

Each paragraph is composed of three things: a topic sentence, a supporting sentence, and a concluding sentence. The topic sentence is the first sentence of the paragraph and it should be clear and concise. The supporting sentence is the second sentence and it should provide evidence to support the topic sentence. The concluding sentence is the third sentence and it should summarize the paragraph and lead to the next paragraph.

When you write a paragraph, you should always start with a topic sentence. This sentence should be clear and concise and it should state the main point of the paragraph. After the topic sentence, you should write a supporting sentence. This sentence should provide evidence to support the topic sentence. Finally, you should write a concluding sentence. This sentence should summarize the paragraph and lead to the next paragraph.

Remember, the structure of the paragraph is important for your essay to be readable and easy to follow.

When you write a paragraph, you should always start with a topic sentence. This sentence should be clear and concise and it should state the main point of the paragraph.

After the topic sentence, you should write a supporting sentence. This sentence should provide evidence to support the topic sentence.

Finally, you should write a concluding sentence. This sentence should summarize the paragraph and lead to the next paragraph.

Carol Wilusz
cwilusz@colostate.edu

Colorado State University



thank
you!



Why are grammar and spelling important?

- Clarity & Understanding
- Professionalism & Credibility

"The results of the experiment where inconclusive. Further research is needed to validate the hypothesis."

"The results of the experiment where inconclusive. Further research is needed to validate the hypothesis."

With the **Oxford Comma**:

We invited the rhinoceri, Washington, and Lincoln.



Without the Oxford Comma:

We invited the rhinoceri, Washington and Lincoln.

