

A Guide to the Academic Writing Style

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1.0 Introduction

If you are enrolled in a research-based graduate degree program, you will be expected to produce a scholarly work, whether that is a thesis, dissertation, or a series of journal articles. While there will certainly be many hurdles to overcome while carrying out your research project, the process of writing in itself is often one of the most daunting parts of the research process. Effective communication of your findings is also one of the most important aspects of research. For many students, learning to write in the academic style is marked by a steep and often difficult learning curve.

The following guide has been created to help you with the writing process and has been derived from my experiences developing as a publishing scholar in my own career as well as from advising numerous graduate students. Please understand that while you may feel that you are an excellent writer, and may well be, academic writing is not like other styles of communication and you have likely received very little practice in your undergraduate studies. Truly the best way to become a better academic writer is to *read academic papers in vast numbers* and to practice. However, I offer the following as a series of explicit goals for which the academic writer should strive as well as a listing of helpful tips. Please note that the informal style of writing in this document is not in itself an example of scholarly writing because that is not the intent.

This document assumes that you aim to publish scholarly work. Even if this is not your intent, it is the standard to which you will be assessed.

2.0 The Pillars of Academic Writing

1. *Academic writing must be clear, concise, and terse.* Effective academic communication is not English literature. We do not use flowery or overly ornate ways of saying things. Students frequently use redundant phrases in their writing because they feel it sounds more authoritative. The researcher may say, "In order to best target sites for remediation, the model..." The common phrase *'in order to'* is redundant and only serves to make the author sound more authoritative. The researcher could easily have stated, "To best target..." instead. There are countless examples of similar ways that writers clutter their work and collectively these errors result in unclear, wordy and therefore less effective communication. Longer is not better in academic writing. It is not a race to a 100+ page thesis. You

must be thorough, yes, but not long-winded. Your advisor is not concerned that your thesis is not long enough. Instead, they're looking for concise and effective reporting of your research. You don't win if you have the longest thesis; you probably need to relay the same concepts more tersely if this is the case.

2. *Academic writing must be direct, literal, and explicit.* This is something that most students are often confused about. The audience of an academic paper is very different than that of a newspaper article, magazine article, or web blog. The group of academics that are reading your published work are likely far more diverse in terms of their backgrounds and cultures, the countries they live in, and the languages they speak. Modern academic writing is largely published in English, but English is often a second/third language for the readers of academic works. Colloquialism, euphemisms, indirect statements, similes, metaphors, and similar constructs have no place in academic writing because they only serve to confuse the readership. Remember, we're striving for clarity of meaning (Point 1). While academics are usually aware of this rule, it often enters writing in subtle ways. For example, the researcher may say, "To test how the new data-loggers stacked up against previous designs..." But can data-logger designs literally be *stacked up* against one another? Can you see how this might be confusing for an intelligent reader, familiar with the research area, but for whom English is their second language, which perhaps they learned in a culture outside of North America where this phrase is common. As another example, the title '*Pillars of Academic Writing*' above is an expression that may be apparent in its meaning to you, but cannot be interpreted literally. If a sentence, or part of a sentence, cannot be interpreted in its **literal meaning** by someone with a moderate understanding of English and no cultural familiarity overlapping with that of the author, it must be revised. We are restricted to the sub-set of the English language that cannot be 'lost in translation' for which there can be no confusion over meaning.
3. *Academic writing must be logically consistent.* How do you develop the logical foundation of your study, based on previous research and the perceived gaps therein, to arrive at your research statement, objectives, aims, or hypotheses? The introduction/review section of your paper must contain an argument based in logic. This is often what is referred to as the 'Story' of your work, or the 'Big Picture'. The logical progression of your study may sound, at a very high level, something like this: 1) A better understanding of *A* is necessary for reasons *B*, *C*, and *D*. 2) Recent research into *A* has shown this, *E*, progress in the field. 3) However, there is *F* deficiency in *E*, and therefore our understanding of *A* is currently limited, as evidenced by *G*. 4) I therefore will attempt to resolve these issues in this way (research statement/objectives fit in here). If you cannot express your research in this sort of four-to-five sentence fashion, you don't have a good enough handle on the logic that serves as your research study's foundation.

3.0 Writing Tips

The following is a list, in no particular order, of things that can improve your scholarly writing:

Tip 1: Paragraphs are not arbitrary divisions of your writing. A paragraph must contain one topic or theme, usually set out in the introductory sentence. Furthermore, paragraphs are not just randomly placed throughout a paper or literature review. When there are seemingly unrelated paragraphs within your introductory or literature review sections it is a sign that you are missing the story of the work, i.e. you do not have a clear logical consistency in your argument (See Point 3 above). Use linking concluding sentences in a paragraph to

guide the reader through the logical progression of the argument. This way the following paragraph is never a surprise and never appears random in placement. Within a paragraph, sentences must also follow a logical progression. They are not randomly ordered within their containing paragraphs.

Tip 2: Paragraphs are not a page and a half long. If this is the case, it's a sign that you 1) aren't being concise, or 2) have lost the plot on your *big picture story*.

Tip 3: Results sections present your findings whereas discussion sections place the findings within the context of your research objectives and the findings of previous work. Students most often struggle with reporting results. You must report the findings, as they are presented in the figures and tables, in written form. You may highlight important findings that you will later focus on in the discussion. You may tell us what factors were found to be statistically significant and which were not. You may guide the reader to better interpret a trend that is perhaps not immediately evident in the data contained in a figure or table. But do not discuss the significance of these findings in the results. That's a discussion section activity. One of the most common requests of reviewers and editors is to separate the results and discussion sections of a submitted manuscript. Why not plan ahead and start off that way?

Tip 4: Use an active voice.

Tip 5: Contractions have no place outside of direct quotations in academic writing. Ours is a formal style of writing.

Tip 6: Direct quotations have no place in (most) academic writing. Obviously for those disciplines where textual information is the data, this won't be the case. But even then, quotations are generally restricted to the results and are not presented in the literature review. Remember, a literature review is a *synthesis* of a body of scholarly literature. A direct quotation tells your reader that you didn't understand what the scholar was saying well enough to synthesize the material and relay the meaning of the work in your review.

Tip 7: Use a consistent tense within a section. This is important and one of the most common mistakes in student academic writing. You do not need to (nor do you usually) use the same tense throughout a paper/thesis, but the same tense is always used within a section (e.g. the methods, results, and discussion sections). The three most common tenses used in academic writing include the present simple tense, the past simple tense, and the present perfect tense. If you don't know what these are, you should read the resource at this link <http://writingcenter.unc.edu/handouts/verb-tenses/>. The exact usage of tense within a paper is dependent on the discipline and even the journal. However, in general, methods are usually referred to using the past simple tense because methods are things that *were* completed previously to carry out the research. Your findings (and in fact other researcher's findings) are *still* valid in the present and should therefore be reported on in a present tense. It would be awkward to refer to the data contained in a figure that the reader is currently looking at in the past tense.

Tip 8: Avoid using *I* or *we*, although in some disciplines and under certain conditions this may be acceptable. It may seem strange, but prefer 'The authors did not corral the cats...!' over 'We did not corral the cats...!' unless you have a very good reason otherwise.

Tip 9: Academic writing must adopt a neutral tone. Be mindful of the need to use gender-neutral language. Don't add unnecessary value-laden qualifiers. For example, something isn't 'very important' it's simply 'important'. Prefer 'relatively large' to 'big', or worse, 'huge'.

Tip 10: Set a rhythm in your writing to help the reader pace themselves. It doesn't matter how brilliant you may be, reading your writing, like all writing, is hard work. How many times have you read a paper that you

were interested in but by the end you felt that your eyelids were getting heavy? Pace your reader with rhythmic variation in sentence length. Personally, I find that using a combination of two long sentences (not run-ons though) followed by a short sentence and repeated in this order sets a good pace. Communicate fine details and dense material in the longer sentences and have punchier statements in your short sentence. It's subconscious for the reader but greatly improves readability. (See what I did there?)

Tip 11: If your sentence is four or more lines long, it's likely a run-on sentence. Your reader is at high risk of getting lost in the sentence. Have you ever had that experience where you needed to go back to the beginning of a sentence and try to figure out what the author was saying?

Tip 12: Number your sections 1.0, 1.1, 1.2, etc. Avoid too many levels of sub-sections. More than three (e.g. Section 4.1.2) is rarely, if ever, necessary. Section 2.10 is the tenth sub-section of section 2.

Tip 13: Double space all of your paper/thesis. It is awkward when sub-titles have no space between them and a double-spaced paragraph below. I've seen this increasingly in student writing and I think it is often a result of MS Word's styles. Make Word succumb to your vision of the layout of your document and not the other way around.

Tip 14: Number your thesis pages; this is usually done in the upper righthand corner although not always.

Tip 15: Use semicolons sparingly and appropriately. Should you never use an interrobang?! That's right. Of course, you should know what an interrobang is so that you look intelligent at gatherings of punctuation aficionados.

Tip 16: Italics are often used in informal writing to show emphasis. This document is a good example of that. Academic writing doesn't convey emphasis because we adopt a neutral tone (sorry interrobang, but that's why you're out) so italics are only used in rare circumstances. For example, italics are used for specifying the latin name of species and other latin things (e.g. *et alia*).

Tip 17: Every citation in your text must be accompanied by a corresponding reference in your reference list and every reference that appears in the list must be cited in the text. Check this then double-check this. Check this three times before submitting your draft to your advisor.

Tip 18: Citations generally take one of two forms. First, there is the in-line citation format, e.g. *Lindsay et al. (2016) found that cats could be corralled more effectively...* Secondly, there is the appended citation format, e.g. *Cats are not natural herding animals (Lindsay et al., 2016)*. The brackets around the year in the inline style, and around the whole citation in the appended format, are not optional. Neither is the '.' after *al* in 'et al.'—it's short for *et alia*, meaning 'and others'. The comma after the 'et al.' is however optional, depending on the referencing style you are using. The appended citation style, which places the citation within brackets either within or at the end of the sentence, has the major advantage that you are able to have multiple citations within a single set of brackets, usually separated with a semi-colon, if the comma is used to separate the name and year, or a comma otherwise. (Did you notice that that last sentence is a run-on? It's tough to read, right? To repair this, I'd remove the second clause, which isn't necessary because I've previously explained the meaning of the appended citation style. I'd also add a period between the third and fourth clauses to form a second sentence.)

Tip 19: Use a consistent reference style. It is not as important which style you use as it is the consistency with which you use it. Reference managers can make working with references and citations in academic writing far easier. Nevertheless, you must be mindful that reference managers can still format references improperly, particularly when data are incorrectly entered into their databases.

Tip 20: Reference appropriate materials. This means several things. First, reference the original source material. If you read in Lindsay (2016) that Smith (2008) said *ice-age pigs had evolved wings*, download and read Smith (2008) and reference that source; don't attribute *flying pigs* to Lindsay (2016) if it was Smith (2008) that originally stated it. Secondly, if you are in a fast developing discipline and your latest reference is 2005, you're not reading and citing extensively enough. Lastly, you need to base your literature review on the scholarly literature of peer-reviewed journal articles. I commonly see students heavily referencing textbooks. This is a poor basis for your survey of the literature for the same reason made in the second statement above.

Tip 21: Avoid non-evidence based assertions at all costs. Do not draw conclusions from your work that cannot be explicitly supported by your results. Also, do not make blanket statements in your review of the literature without providing the support of previous studies. In fact generalities are best avoided all together. This naturally means that nearly every sentence in your literature review has one or often more citations. This may seem odd at first but it is necessary to avoid the appearance that you are making assertions. **Assertions are very bad** and reviewers will almost always flag them when they occur in a paper (notice how I started off with a bold and general statement that I then justified with evidence?). Students will often ask me, "when do I not need to reference something", to which I usually reply, "you can assert that the sky is blue but most everything else should be based on evidence and citations to previous work." That's the standard.

Tip 22: Avoid unnecessary negation. For example, 'not important' is 'unimportant'. Words like unimportant, discontinuous, unacceptable, and antonyms more generally, exist so that you can write in a positive way what you would otherwise have to write in a negative way. "Cats cannot be confined to a pen" is a negative statement while "cats must be allowed to roam freely" is positive. It's never good to be negative. (See what I did there?)

Tip 23: Be very careful with jargon. Each discipline has its own jargon but unless you are absolutely sure that the target audience is familiar with the term, avoid jargon.

Tip 24: Acronyms and abbreviations (the distinction is whether it is pronounced as a word, e.g. radar) should be provided **at first usage** and should follow the format, "The application of light detection and ranging (LiDAR) technology for terrain mapping..." Notice that the long-form appears outside of the brackets and the acronym appears within brackets. Once you've introduced an acronym/abbreviation never use the long form again in the document. There is no abbreviation, no matter how commonly used in your discipline, that doesn't require the full form at first usage. The one exception to the first usage rule can be the abstract, although this will depend on the journal.

Tip 25: When you have a large number of abbreviations, consider including a list of abbreviations for your poor, lost readers. "I'm sorry, what was the difference between a DEM, DSM, and a DTM again?!"

Tip 26: The short-form of 'for example' is e.g., not ex. 'That is' is written in short-form as 'i.e.', which stands for *id est*. Both of these short-forms are common in academic writing so get familiar with how they are written and how they are used.

Tip 27: Don't refer to a section of your paper/thesis in the section itself. You probably know someone that always refers to themselves in the third-person. "John is going to write his thesis tonight!" said John as he sat at his desk, coffee in hand. Well, writing "Two other models noted in this review are Model X and Model Y..." is just about as tasteless. It's as though you're serving as author and narrator and an academic work does not need a narrator, unless of course you're writing the movie script version of your thesis.

Tip 28: Avoid statements such as, "**As can be seen from Table 2**, most relations were statistically significant." This is an indirect way of saying, "Most relations contained in Table 2 were statistically significant." It's also

another example of needless narration: 'The reader now looks at Table 2 and sees...The reader now turns the page.' Remember, your thesis is not a screenplay.

Tip 29: You need not avoid pronouns but do be careful to always avoid *ambiguous pronouns*. Try to spot the mistake in the following: "All of the cats were herded into the five mobile corrals. They were then left there for three hours." Does the 'they' refer to the cats or the corrals or both? It's ambiguous. I see this occur very often in student writing. 'It', 'they', and 'these' are the most common risky words in academic writing. Remember, we strive to be explicit and these pronouns, without the aid of qualifiers, are inherently implicit. Use them with care. (See what I did there? Does 'them' refer to the pronouns or their qualifiers?)

Tip 30: You are writing your thesis in Canada so use Canadian spelling consistently throughout the document. If, like me, you were raised on Sesame Street and are often unsure of our spellings, examine this link http://www.lukemastin.com/testing/spelling/cgi-bin/database.cgi?action=view_category&database=spelling&category=A. You can't rely on MS Word to know what Canadian spelling is.

Tip 31: Things that are obvious to you as the researcher will not necessarily be obvious to the reader and will require clarification. The standard here is that someone reading your paper/thesis should be able to replicate the study from your description alone. If that isn't possible, further clarification is needed. A good proportion of questions at most thesis defenses center around the need to clarify some aspect of the work.

Tip 32: You are a scientist, so use SI units for everything.

Tip 33: The word 'significant' holds a special place in academic writing. It implies a statistical test has been applied and a statistically significant difference or relation has been identified. If this is not the case, then you probably want to use another word, such as 'substantial', instead. For example, "Herding cats is *substantially* more difficult than herding cows."

Tip 34: Avoid unintentional rhyming, which can distract from what you are trying to say. As an example, read the second sentence of the previous paragraph again. Excessive word repetition within a single paragraph can have the same effect. This is why there are thesauri. (I just couldn't help myself there!)

Tip 35: Conclusion sections do not present anything new. Everything stated in the conclusions must have originated from the findings and discussion. A good conclusion section outlines the 2-5 major findings of the work in an organized and explicit manner. Numbered lists of findings can be useful for this purpose.

Tip 36: Integer numbers less than ten should be written in long-form unless they are measurements with associated units or are within a range (e.g. 2-5). For example, you shouldn't write, "There were 4 cats that scratched the researchers more than all others." For those of us that are old enough to recall life before we started publicly broadcasting 140-character reports on the nuances of our breakfasts (*Forget my diet; I'm having 2 bowls of cornflakes this morning!*), these low-integer numerals are particularly grating. As an aside, use a full-sized keyboard to write your thesis. Your mobile phone is not a good platform for this sort of activity.

Tip 37: Listen to your adviser when they provide revision suggestions. Your advisor has had a career's worth of experience publishing scholarly works and has participated in numerous thesis defenses. They know what effective scholarly communication is. So when your adviser asks for revisions to a draft, you should heed their advice.

Tip 38: Being a good academic writer is more about being an excellent editor. Edit your draft multiple times before you let any colleague or advisor read it. Become familiar with your weaknesses as a writer. For example, I know that I overuse brackets to create compound sentences. When I edit my writing I'm always mindful of needless brackets. (I've also been told that my writing carries a deeply sarcastic tone, but surely that's untrue.)

Tip 39: Acknowledgements are important. You may be unaware of this, but your research project very likely is a component of your advisors larger career-long research program. In fact, part or all of your funding has been provided by a research grant that your advisor received, which contained a component that broadly outlines your project. Sometimes this grant proposal was written a year or more before you started in your degree program. It is a common requirement of publishing that you **acknowledge all of the sources of funding that contributed to your work**. Speak with your advisor if you are unsure about the various grants and funding sources that have contributed to your funding package and that have allowed for your research data collection.

4.0 Figures and Tables

There are entire books that focus on the topic of effective data visualization and this topic is well worth investigating in detail. The following is a short list of common issues related to the integration of graphical and tabular data in scholarly works:

Tip 40: Academic papers have figures and tables and that's it. There are no graphs, charts, schematics, diagrams, plots etc. Everything is referred to as either a figure or a table. This is an aside to my main point but to a geographer a *chart* is a map of an ocean/coastline.

Tip 41: Excel does not naturally produce publication-quality figures. I have seen it used to create some graphical atrocities that have been submitted for publication. If you don't have access to quality commercial software for scientific visualization then I'd suggest using either *R* or Matplotlib with Python. These software packages can be used to produce figures that can be embedded into your work or submitted for publication. If you insist on using MS Excel, then don't use the default styling and you will in all likelihood need to export the figure in a vector format and edit the figure using a vector line art program like Adobe Illustrator or Inkscape. Be mindful of consistent line thicknesses. Figure 1 is an example of a simple figure produced using Matplotlib. This open-source scientific visualization library can be used to create a wide variety of plot types and is very flexible in styling.

Tip 42: Number your figures/tables (e.g. Figure 1, Table 2) and refer to them in the text as Figure 1, Figure 2, etc. Every figure and table presented in your work must be referred to in the text, most commonly somewhere in the results section. Methods sections also frequently have figures and tables, although they are rarely used in discussion sections and are almost never present in introductions. Conclusions and abstracts should never have figures or tables.

Tip 43: Do not refer to the positions of tables/figures in the document, e.g. "Figure 1, *shown below*, illustrates this trend." The positioning of figures and tables is the job of the copy editor and is usually out of the author's control.

Tip 44: Figure captions belong below the figure and table captions belong above the table. Captions should describe everything needed for the reader to interpret the figure/table. If you have a multi-part figure, each part must have a letter designation (A, B, C, etc.) and the caption must also have a corresponding sub-section for each part. Every figure and table must be accompanied by a caption without exception.

Tip 45: Use colour in your figures sparingly and only when it aids in the interpretation of the work. Do not use it simply because you feel it looks nicer. Many journals charge hefty publication fees for colour figures. Are those blue data points on your scattergram really worth \$1000 of research funding?

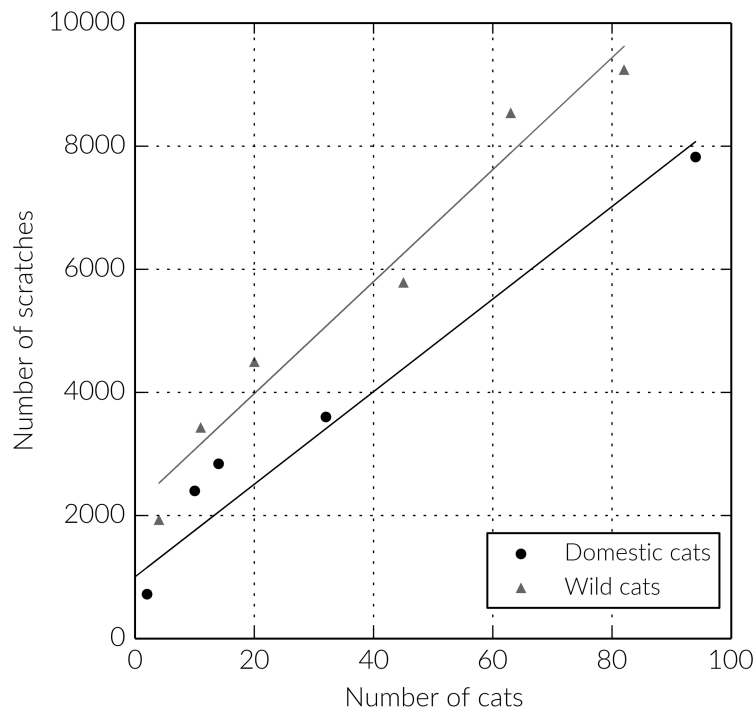


Figure 1: The numbers of cats corralled versus the number of scratches suffered by the researchers.

Tip 46: Label all of your axes and tell us what units you are using.

Tip 47: This is geography so figures that include **maps must be of very high quality**. Screen grabs of Google Earth will simply not suffice. You didn't spend all that time in Grade 8 Geography colouring maps of South America for nothing. You've developed some keen cartographic skills and it's time to let them shine.

Tip 48: Avoid multi-page tables and figures. Try to break them into multiple figures/tables instead. These multi-page monsters would undoubtedly be difficult for the reader to interpret anyhow. Sometimes a table that can easily be fit to a single page ends up being split over two simply as a result of the layout. Use a page-break and leave empty space at the bottom of the prior page when this happens.

Tip 49: If you include a figure from another source, you usually want to redraw the original and it is essential that you include a 'modified from Lindsay (2016)' credit in the figure caption. Remember, copyright belongs to the publisher of the original work. You certainly cannot embed the figure from another work directly into your thesis/paper without prior consent.

Tip 50: Avoid unnecessary dimensions in your figures. Have you ever seen those three-dimensional bar charts, usually made in MS Excel and often used in business presentations? These are perfect examples of unnecessary dimensions. Three-dimensional plots should be reserved for three-dimensional data. Gratuitous dimensions only serve to make the figure more difficult to interpret, which I suppose if you're trying to hide the fact that you've funneled millions in venture capital funds into your private bank account, you just might be aiming to do.

Tip 51: Tables in scholarly literature have no vertical lines, only horizontal lines. I suppose the closed cells formed by vertical lines in tables are an affront to the academic freedom that we hold so dear. Horizontal-

line-only tables can be achieved in MS Word or other word processors but there is no default style that will do this for you. Speak with your advisor about how this is achieved. Table 1 is an example of the academic table format.

Table 1: The number of cats contained in each study corral, the duration (in minutes) of their containment, and the number of scratches suffered by the researchers.

Corral Name	Cats	Duration	Scratches
West Ranch	10	1.0	10,824
Cat Wrangler	32	1.3	3,601
Jimmy's Pen	104	2.6	1,442
Dodson Farm	2	5.1	722

Tip 52: Figures/tables and their captions should be on the same page.

Tip 53: Particularly in a thesis, figures and tables that are embedded as near as possible to their citation are best. It can be difficult for the reader if they need to constantly refer to a grouping of figures at the end of a chapter. When reading the PDF version, this can be downright tiring. Manuscripts submitted for publication will frequently include groupings of figures and tables at the end of the document, separate from the text, but this depends on the journal. This is for the convenience of the copy editor, not the readers.

5.0 Concluding Remarks

A graduate degree in any academic discipline trains you to perform research. You are being trained in many aspects of research, including the framing of research problems, development of conceptual frameworks, experimental design and methods, data collection and analysis, and the proper interpretation of findings. No matter how novel and valuable your graduate research is, unless you are able to effectively communicate the details of your work, other scholars and practitioners will not fully benefit from your efforts. This is why the outputs of research (theses, journal articles, conference presentations, etc.) are so highly valued in academics.

Like all cultures, academics has its own set of norms that its members are expected to adhere to. Most often, these rules are in place to ensure clarity and more effective communication. If you follow the guidelines and tips provided here you will surely save yourself frustration and perhaps even a few tears. Now that you better understand the language of academics, you can enjoy the fun part—conducting your research!