

How to be an Academic writer

September 24, 2021
Dr. Steven Conrad



WALTER SCOTT, JR.
COLLEGE OF ENGINEERING
COLORADO STATE UNIVERSITY

Connecting the Dots: Student Success in Systems Engineering

Fall 2021 Lecture Series



SYSTEMS ENGINEERING
COLORADO STATE UNIVERSITY

How to Succeed in Academia

Dr. Erika Miller

Friday, September 10, 2021

12:00 p.m. - 1:00 p.m. MT

Updated Location: LSC 322 & Zoom

Ph.D. Intensive Writing

Dr. Steve Conrad

Friday, October 8, 2021

12:00 p.m. - 1:00 p.m. MT

Updated Location: LSC 322 & Zoom

How to be an Academic Writer

Dr. Steve Conrad

Friday, September 24, 2021

12:00 p.m. - 1:00 p.m. MT

Updated Location: LSC 324 & Zoom

What is Systems Engineering?

Dr. Tom Bradley

Friday, October 22, 2021

12:00 p.m. - 1:00 p.m. MT

Updated Location: LSC 376-378 & Zoom

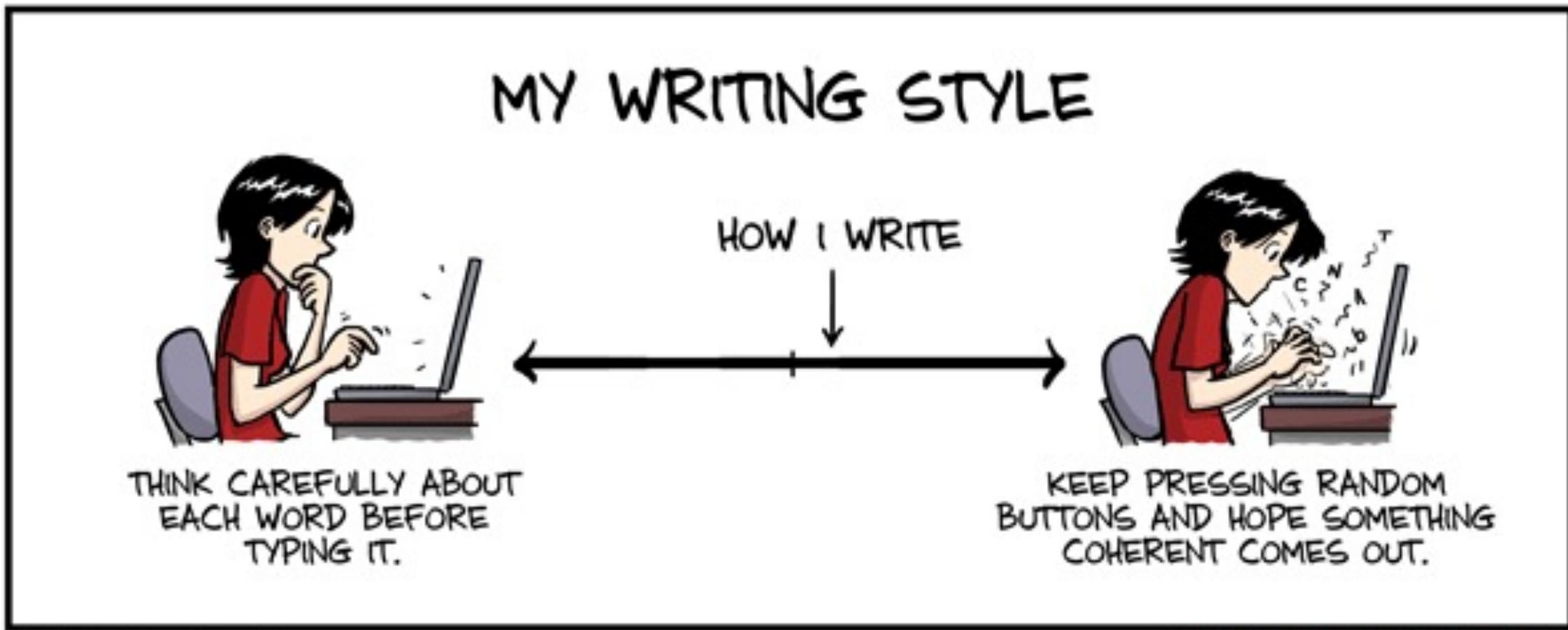
A light lunch & coffee/tea will be provided. Join us at 11:00 a.m. for an informal get-together before the talk!

Brief outline of today's talk

1. Expectations of academic writing
2. Transitioning from Profession to Academia (a personal journey)
3. Resources and tools



Expectations of academic writers



Piled Higher and Deeper by Jorge Cham



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A new culture

- Academic writing is more than a style – it is another culture with its own expectations
- How did I learn academic writing? – THE HARD WAY



"We can do this the easy way or the hard way."



Expectations of academic writers

1. Express critical thinking skills
2. Identify history (sources) of study and contribution of your writing to the broader academic community
3. Describe research objectives and the methods used in your work
4. Clearly present information and data in a repeatable fashion
5. Analyze data in unbiased manner (no prior expectations)



Expectations of academic writers cont...

6. Rigorously defend well-founded conclusions
7. Express expertise through neutral recommendations (about your research and the broader academic context)
- 8. Creatively present your story – Ground it in literature**

All factual statements need to be supported with some kind of reference. The reference follows the first sentence in a series, and may need to be repeated, rather than using one reference at the end of a series of statements and leaving the reader to figure out whether it covers one or all of them.

Key elements of academic writing

- **Audience Awareness** – your academic audience has a shared knowledge about the topic
- **Has an argumentative purpose** – argue overall position or view of the subject and includes a point of view (yours) that is contributing to knowledge or demonstrating the use of knowledge on the topic
- **Presents problems with existing knowledge** – highlights gaps, deficiencies, problems with previous points of view/knowledge. Presents a rationale for considering your contribution.



My personal journey – the tale of multiple voices

PROFESSIONAL

“communicate to influence action or opinion”

“Focus on facts – leave out opinions”

“Be precise and to the point”

“Be informal”

“Use first person to express expertise”

ACADEMIC

“use analysis to increase understanding”

“add your opinion and link ideas”

“Hedge your opinions”

“Be formal”

“Use third person as well as first (to describe activity)”



Expected to move between informal/professional and formal academic writing

- Informal
 - I don't believe that the results are accurate; I suppose that the research indicates; he's short
- Formal
 - The results are not believed to be accurate; The research indicates (or suggests); he is 5' 6"
- Professional
 - I found that x experiment gave the best results
- Formal
 - Findings from experiment x **appear to** suggest that treatment applied provides **notable** results.

A special note on hedging

Hedging is used to express caution in one's statement and to distinguish between claims and facts – you express hesitation to recognize uncertainty.

Example:

No Hedging: Johnson et al (2005) found that 200 liters of diet coke results in a 20% weight loss over drinking sugar based sodas.

Hedging: Johnson et al (2005) **suggests** that substituting diet coke for sugar base sodas **may result** in a 20% weight loss for those participants studied.

Hedging words: suggest, believe, assume, seem, tend, look like, appear to be, think, believe, doubt, be sure, indicate, suggest, It could be the case that..., it might be suggested that..., there is every hope that, possibly, perhaps, conceivably.

Seems wishy washy but illustrates prudence on your part!

Another note on extremism

Academic writers write in a neutral tone with medium certainty, avoid extremism and absolute certainty which is often called on in professional writing (you are paid to be certain).

Example:

Johnson and Sally (2019) is the **best** paper on behavioural modelling you can read.

More accurate: Johnson and Sally (2019) is one of the most cited papers on behavioural modelling.

Examples of extreme language carried over from professional writing - all, every, none, most, least, always, never, only, best, worst

Another note on extremism

- Be careful about using expressions such as “increasing evidence” unless you can show empirically that it is actually increasing, or you have citations in support
- Avoid dramatic statements such as “**overwhelming** majority,” and “**vast** majority.”
- If you cannot give an exact proportion or an approximate proportion (e.g., more than 60 percent), then stick with “a majority” (if this is the case)
- Avoid sweeping generalizations such as “throughout” or “it is widely agreed that” or “it is generally agreed that.”
- Don’t loosely use words like “independent,” “dependent,” and “proportional.” You are an academic; if you say something is independent of something else, it means that there are no interactive effects

Examples of extreme language carried over from professional writing - all, every, none, most, least, always, never, only, best, worst

Move from facts to clear rationale why your reader should care to read what you are writing

The organic food market has seen tremendous growth in recent years, growing to a worldwide 40 billion US-dollar industry in 2005 and involving 120 countries (Willer, Helga and Yussefi, Minou, 2007). **FACT** The market is growing at a rate of more than 20% annually in the US (Lipson, 1997) and this growth may continue if additional food producers envision business opportunities in the market and consumer preferences shift toward organic and eco-labelled products. **FACT AND SUPPOSITION!** Allen and Kovach (2000) suggest that growth in the organic market offers an opportunity to promote change in the food chain through greater environmental awareness and responsibility among food producers and consumers.

ATTEMPT TO TRASITION If so, at some point, the market may measurably affect the overall food chain, if it is has not already done so. **I HAVE NO EXCUSE HERE!**

Interest in organic foods is increasing worldwide in response to consumer concerns about the environmental effects of intensive agriculture, food safety, and food quality (Thompson 1998, Vindigni et al. 2002, Yiridoe et al. 2005). **STATE OF THE TOPIC** This interest has spurred growth in organic farming as an alternative to conventional farming methods - the latter generating negative impacts that the former avoids. **RESPONSE** Organic farming practices promise an overall reduction in chemicals in food products, soil, and water systems (Allen and Kovach 2000, Horrigan et al. 2002, Sanders 2006). Studies have also suggested that organic diets may offer healthier food choices (Wier 2002). **RATIONALE FOR STUDY** Not surprisingly, these promises have encouraged strong consumer support and enticed governments to make investments in promoting organic foods (Thompson 1998, Dimitri and Oberholtzer 2007). **NEED FOR STUDY**

Know your audience – academics leave time to read carefully!



The Busy Professional

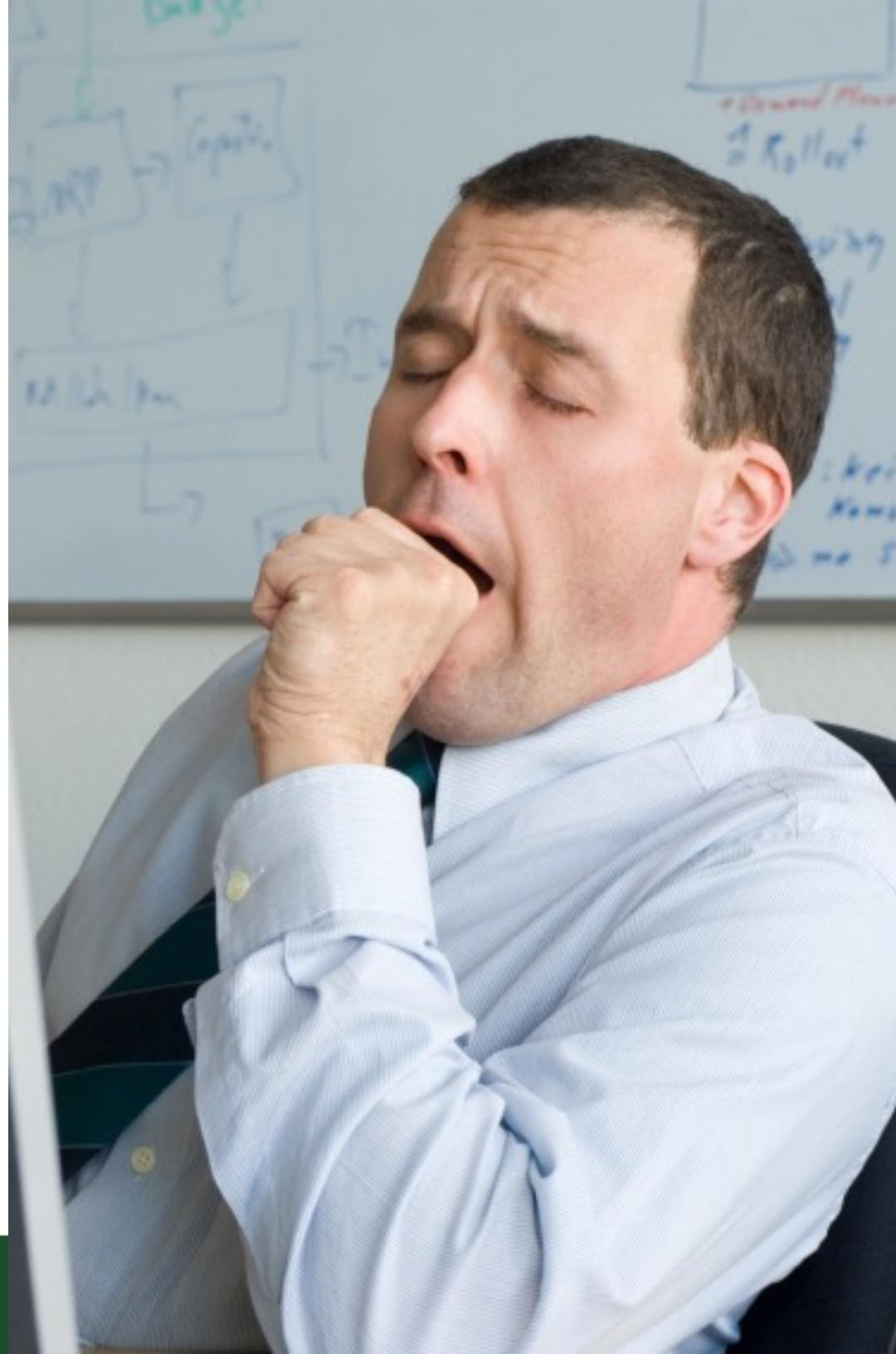


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Academic writing follows a linear structure – perhaps boring but necessary to express clarity

- All introductory paragraphs should have a thesis statement
- Subsequent paragraphs have topic sentences that connect with your thesis statement
- Give clues to transitions and structure of the writing
- Don't be afraid to clearly state what you will do in your writing
- Be creative but guide your reader



In my integrated paper, I will assess whether current organic farming practices have affected any measurable change in the food chain, through either – **LEAVE EM GUESSING?** altering agricultural systems and their effect on ecosystems or through improving the quality of nutrients offered. **LAST PART SHOULD BE IN METHODS** As part of my assessment, I will identify the differences between the traditional food chain and the organic food chain. ~~This will include comparing traditional farming with organic farming practices as they relate to productivity of the farm, control of chemicals, mitigation of environmental harm, protection of biodiversity, input requirements including energy and water, and nutrient output.~~ I anticipate that in my assessment there will be areas in which organic farming may improve some aspects but degrade others. **LEADING?** For instance, while organic farming may reduce the volume of pesticides used, total crop output may change negatively. **NOT LINKED TO TOPIC SENTENCE** In addition, unintended consequences, such as insect and plant-disease outbreaks, may occur from such practices.

In this paper, I examine this hypothesis in a number of ways. First, I use a conceptual food system model (a visual representation of the relationships between the ecological, economic, and social components of the food system) to highlight crucial components of food systems and outline the differences of organic farming in these components. I then provide an analysis of the effects for agricultural ecology stemming from organic farming. Third, I evaluate the organic market against the theorem defining perfect markets and consider its shortcomings. I conclude by weighing the pros and cons of adopting organic farming as a policy goal and discussing the considerations that influence how this goal might be attained.

Using Conjunctions and transitions for reader cues

- Writing does not have spatial cues to guide readers – concepts are presented sequentially – you must provide reader cues to guide your reader through your writing

Our admittedly rough cost estimates for Lagos are shown in Figure 4. These estimates suggest that between 1.5 and 4.7 billion USD would be needed to provide centralized sanitation services to meet current needs in Lagos. Keeping up with population growth would require an additional 1.7 to 4.0 billion USD to be invested (in 2019 figures). If we assume that this investment can be spread evenly over the years between 2019 and 2030, the annual cost for building, operating and maintaining the added sanitation system corresponds to 290 to 784 million USD per year. We hold these estimates to be representative of potential, but conservative, build-out costs. The estimates assume well-known and stable environmental conditions, and **consequently**, do not include additional complicating factors such as costs caused by land-slides or inundations. In **addition**, we assume a stable economic and socio-political context and the impact of unexpected socio-political events (e.g., strikes, lock-outs, demonstrations, social unrest) are not factored in. Because all of our assumptions for build-out costs err on the side of being conservative, actual costs are likely to be significantly higher.

Öberg G, Metson GS, Kuwayama Y, A. Conrad S. Conventional Sewer Systems Are Too Time-Consuming, Costly and Inflexible to Meet the Challenges of the 21st Century. *Sustainability*. 2020; 12(16):6518.
<https://doi.org/10.3390/su12166518>

Resources and tips

- Academic writing is about learning a new language
READ READ READ
- Immerses yourself in academic writing, find models and analyze how authors present their ideas
- Pick a journal in which you would like to publish your research and follow the style of that journal
 - What kind of language was used?
 - What are the commonly used words, sentences, expressions in your discipline? Keep a list..
 - Emulation is adapting – just remember to use your words...



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Does willingness to pay for green energy differ by source?

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Abstract

We present the findings of a choice experiment designed to estimate consumer preferences and willingness-to-pay (WTP) for voluntary participation in green energy electricity programs. Our model estimates WTP for a generic “green energy” source and compares it to WTP for green energy from specific sources, including wind, solar, farm methane, and biomass. Our results show that there exists a positive WTP for green energy electricity. Further, individuals have a preference for solar over a generic green and wind. Biomass and farm methane are found to be the least preferred sources.

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Keywords: Solar; Wind; Choice experiment

1. Introduction

The United States generates its electricity using a wide variety of fuel sources, primarily oil, natural gas, nuclear, and coal. Of increasing concern are the adverse environmental impacts of these energy sources. Due to pollution externalities these traditional energy sources tend to have market prices below their true social cost. Green energy sources, in contrast, have higher market prices than traditional sources but, likely, lower social costs. In this study, green energy includes solar, wind turbines, biomass, and farm methane. There appears to be real and growing interest among many consumers for environmentally friendly energy production. These preferences may make it privately optimal for some consumers to pay a voluntary premium.

Existing research reports positive willingness to pay (WTP) for green energy electricity premia. These studies elicit WTP for various aspects of green energy, where “green energy” is a generic product (Byrnes et al., 1999; Ethier et al., 2000; Gossling et al., 2005; Zarnikau, 2003) or focus on the environmental attributes associated with green energy (Bergmann et al., 2006). For instance, Zarnikau

(2003) found 50% of respondents in Texas were WTP at least one dollar per month to support renewable and energy efficiency investments. In contrast, Bergmann et al. (2006) used preferences for environmental attributes to infer preferences for green energy sources. Roe et al. (2001) estimated WTP for inputs and outputs associated with green energy in a multiattribute setting, including non-price attributes such as changes in air emissions, contract terms, and fuel mix (combination of traditional and green sources). Although fuel mix was part of the design in Roe et al. (2001), preferences and WTP for individual green sources were not estimated.

Despite the evidence of WTP for green energy, existing green power programs have shown a median participation rate of only 1.0% (Bird and Brown, 2005). Limited participation may arise from a failure in marketing research; previous studies may have suffered from a stated-preference bias or other error and overestimated WTP for these premia. Alternately, an education or communication failure—high information costs—may exist between producers and consumers so that true demand for green energy does not materialize. This paper is motivated by a third possibility. Consumers may have evaluated the products available, in terms of price and source, and decided not to purchase because the product offered is a generic green energy good or is perceived to be

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Resources and tips

- Adopt a reference manager – EndNote, Papers, reworks, noterra, etc...
- GET feedback on your writing –

CSU Writing Center - <https://writingcenter.colostate.edu/>

- WAC Clearinghouse
 - <https://wac.colostate.edu/resources/writing/>



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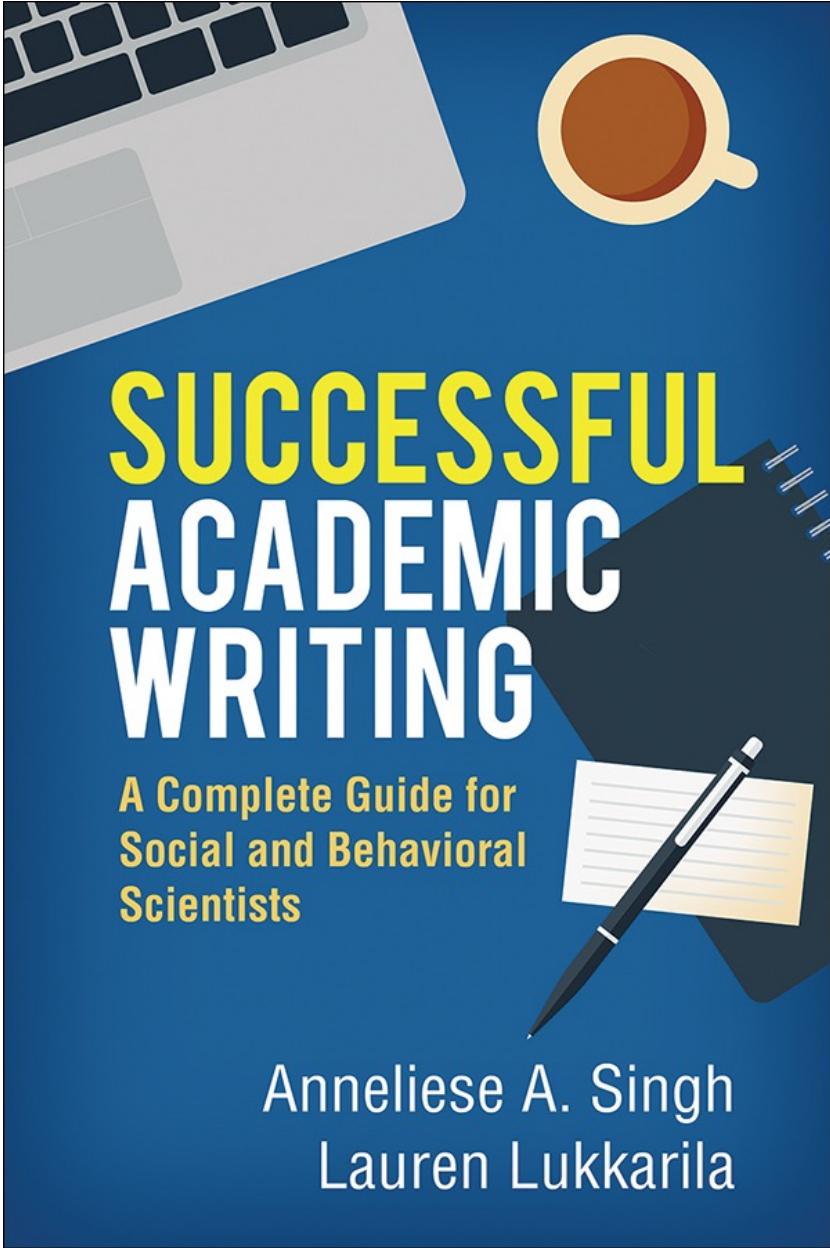
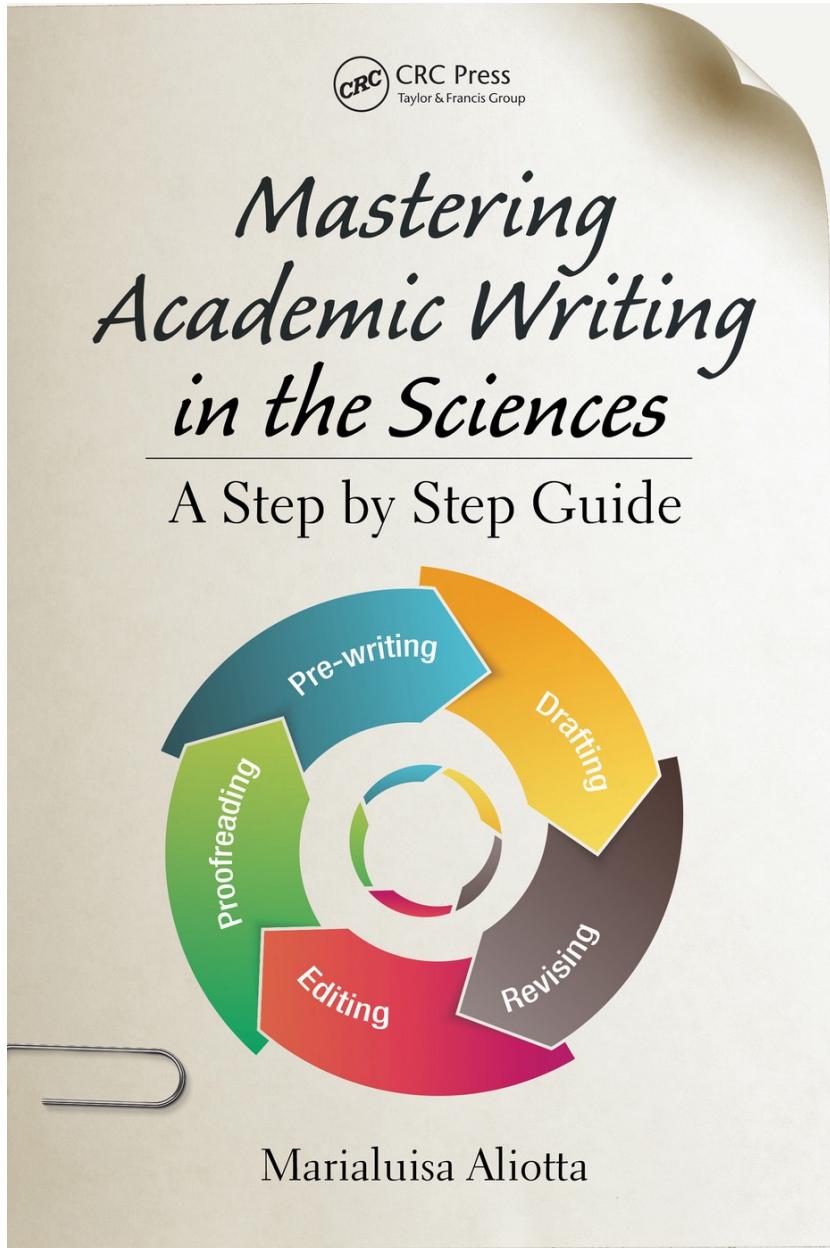
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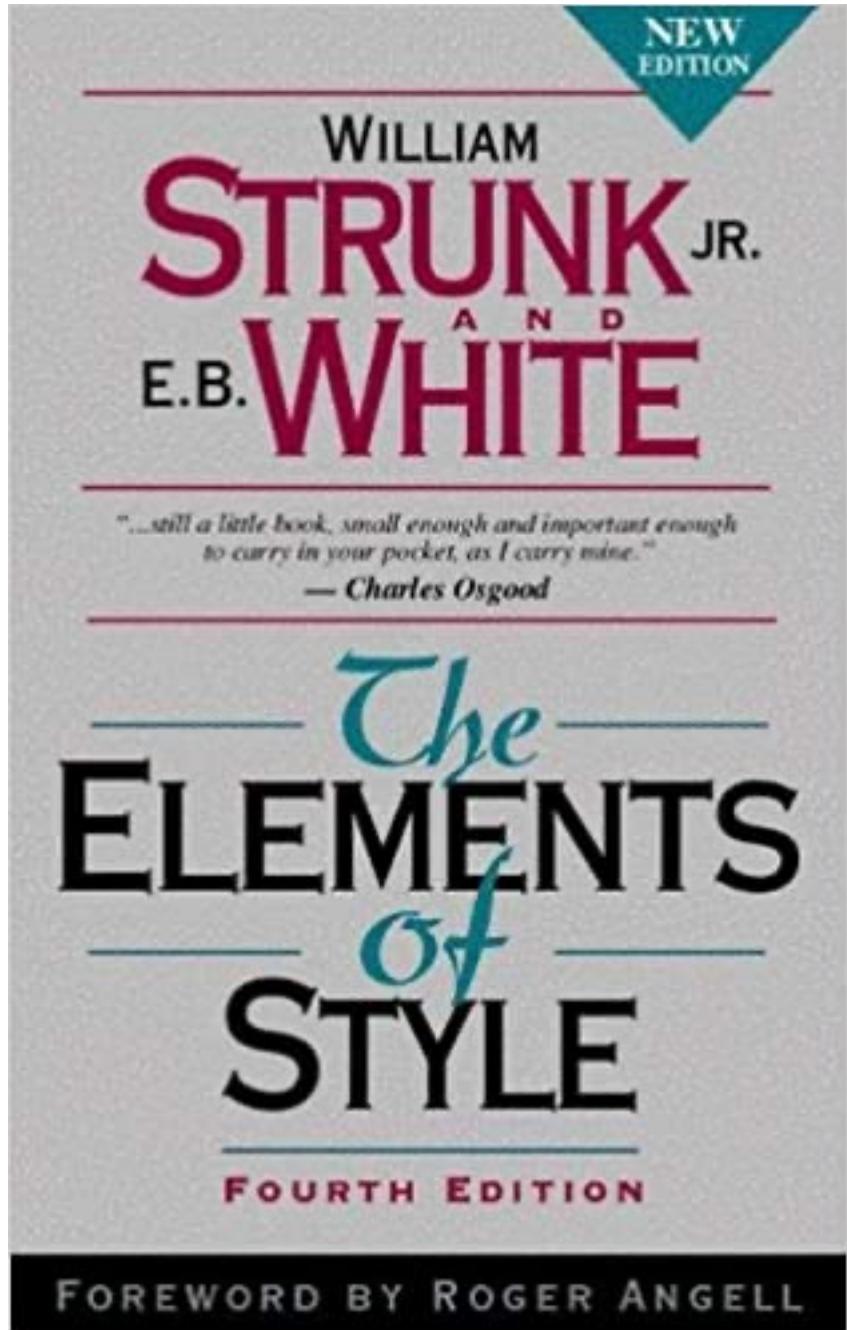
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MY TOP 3 Grammar/Style Mistakes to avoid in academic writing

1. A "this" must always be followed with a subject – sentences should stand on their own.

e.g. "This implies that we must drive 40 MPH" – This what?
3. Not calling out table and figure references – as well as not fully describing tables and figures – they should stand on their own.
3. Lack of parallel structure – lack of patterns to follow leaving readers to assume....

