writing process

Refining your writing process can make academic writing less daunting. This handout will suggest ways to improve your writing process.

General Advice

Time

Make sure to give yourself enough time to produce your best work. Do not wait until the last minute to start your paper. Using your class syllabi, work backwards from your professor's due dates and establish your own deadlines.

Goals

Larger writing projects can be intimidating. Break your writing into small, manageable goals, and try to write daily. As you set and achieve goals, your confidence as a writer will increase.

Note: For more infomation and practice on finding time to write and setting writing goals, please see our "Writer's Block" handout.

Flexibility

Though this handout is presented linearly, try to keep your writing process flexible. For example, just because you have a completed draft doesn't mean that you are finished thinking about your paper's organization. Each part of the writing process continues to affect the others. So find a rhythm that works for you—writing strategies that work for some people might not work for others.

Rhetorical Constraints

Each act of communication exists in a rhetorical situation consisting of a speaker (writer), an audience, and an issue. As you write your paper, you will want to consider how each of these elements interact with each other.

Speaker (Writer)

Every time you speak or write, you create an image of yourself in the mind of your audience. Even in scientific papers, small choices like formatting and vocabulary create an impression of your abilities, values, and intelligence. This is why it is especially important to avoid rushed or sloppy work: your audience might take your thoughts to be sloppy too.

Audience

Understanding your audience is essential for successful writing. Even if you have a compelling argument, alienating your audience will cause your work to fail. As you plan your writing, you will need to determine who your immediate audience is.

For example, when writing for a class, your audience will most likely be your professor, who will generally put constraints on the length of your work and give you a prompt for the assignment. At other times you might be writing for your peers or for a mass audience.

Regardless of the audience, you need to understand the values, background, and expectations of those you write for.

Issue

As you write, you will need to assess how much you and your audience know about the issue. This generally means researching what has already been said about the issue. Your audience might even be part of the issue itself. Finding out what has been said will allow you to say something new and advance the conversation.

Note: For more information on the rhetorical sitatuation, please see our "Revision" handout.

Planning

The work done to plan a paper is often referred to as "prewriting." We choose not to use this term because "prewriting" suggests that planning and brainstorming cease once you start putting words on the page. This idea is false: **you will continue to refine your ideas as you draft and revise**.

Selecting an Issue

Sometimes your professor will define your issue through the use of a writing prompt.

> **Example**: Focusing on a community in the Baltimore area, research and discuss the association between one of the population characteristics we have discussed in class (e.g. age, class, education, gender, income, race, sexual orientation) and overall health.

Once you have the prompt, distinguish between the elements that are **fixed** and the elements that are **flexible**.

> **Fixed Elements**: The community to be studied has to be in Baltimore. The paper has to focus on the association between population characteristics and overall health.
>
> **Flexible Elements**: The specific community and the specific population characteristic are up to the student.

Identifying the flexible elements will allow you to tailor your issue to your interests.

> **Example**: I am interested in the role that gender plays in health, and I have easy access to the Waverly community, so I want to study the association between gender and overall health in Waverly.

If your professor does not give you a definite prompt or if you are writing your own research, find an issue that truly interests you. You will be spending a considerable portion of your time thinking about your issue, so it should be one that engages you.

If you are having trouble finding an issue, look at journals in your field. Ask yourself, "What is the current state of the conversation in the field? How can I contribute? How can I move the conversation

forward?"

Transforming an Issue into a Question

Once you have selected an issue, you will want to assess what is known and what is unknown about it. This usually means conducting some preliminary research in the library. As you read, consider the following facets of knowledge.

Assess Your Knowledge		
	Known	**Unknown**
Known	Known Knowns: What do you know that you know?	Unknown Knowns: What don't you know that you know?
Unknown	Known Unknowns: What do you know that you don't know?	Unknown Unknowns: What don't you know that you don't know?

For example, when preparing to write about Waverly, you might realize that you know its location (known known), but you don't know much about its history (known unknown). During your research you might discover a gap in your knowledge that you didn't anticipate (unknown unknown), or you might find an answer that you already knew but didn't realize was significant (unknown known).

Once you have determined the limits of your knowledge about an issue, you need to form a research question. Depending on the state of knowledge in your field (and the consensus about that knowledge), your question might focus on different aspects of the issue.

Fact: Does X exist? Is there an X?

Definition: What kind of thing is X? What should we call X?

Quality: How important is X? How significant is X as compared to Y?

Procedure: What should be done about X?

Your question should reflect your interest in the issue.

Example: What is the association between gender and overall health in Waverly?

If you are still unable to generate a research question, consider using a brainstorming device called the topoi of invention.

Note: For more infomation and practice on selecting an issue, please see our "Brainstorming: Invention" handout.

Once you have a question, you need to evaluate it. Not only should it be a question worth asking—it should be a question worth answering. In order to assess the relevance of your question, you might follow a formula suggested by Booth, Colomb, and Williams (2008):

I want to study (what you're studying) because I want to find out (what you don't know) so that (why you want your reader to care).

Example: I want to study the association between gender and overall health in Waverly because I want to find out whether women in that community have poorer overall health than men so that I can identify any possible health disparity.

Determining the relevance of your research will help you answer the question "so what?" This answer will be a crucial part of your "Discussion" section.

Note: For more infomation on forming research questions, please see our handout on this topic.

Transforming a Question into an Argument

Once you have a solid question, you will need to select the research methodology that will best help you answer it. If you are working with journal articles or other sources as part of your research, be sure to keep track of their bibliographic information so that you can accurately cite them later.

As you research, you will begin to find an answer to your research question. This answer will form the core of your paper's argument.

Arguments are made up of four parts: claims, reasons, evidence, and assumptions. Your claim is the answer to your research question. This claim will be supported by reasons, which are in turn supported by the evidence you have discovered in your research. Assumptions are what link the reasons to the claim.

Example: Women in Waverly have poorer overall health than men because they have higher rates of diabetes.

Claim: Women in Waverly have poorer overall health than men...

Reason: ... because they have higher rates of diabetes.

Assumption: Higher rates of diabetes lead to poorer overall health.

You will want to have a firm understanding of the assumptions your claims are built on in order to avoid logical fallacies.

Note: For more infomation on how to avoid logical fallacies, please see our "Persuasion: Reason" handout.

Organizing

Scientific writing is highly structured so that readers can access information as easily as possible. You will want to make sure your paper is well organized so that you can fulfill your audience's expectations for readability and accessibility.

Note: For more infomation on how to organize your writing and for examples of the strategies listed below, please see our "Organization" handout.

Outlining

When you outline, you focus on how your ideas connect and progress throughout a text. Scientific writing has the added benefit of conforming to specific structures, such as the IMRAD structure (Introduction, Methods, Results, and Discussion).

Start by listing the ideas, sources, or concepts that you need to address in a particular section. Then, rearrange these elements into the most logical order. Once you have this order in place, flesh out your ideas into sentences. These sentences will serve as topic sentences for your paragraphs. Finally, write your paragraphs.

Storyboarding

If outlining does not work for you or if you don't yet have the specifics for a particular section, try

storyboarding your paper instead. To do this, use separate pages for each section of your paper, making sure to leave lots of space for your ideas. Sketch in the general ideas you want to cover. The point is to be more flexible than you would with an outline. You might even try posting this on a wall and using sticky notes for individual ideas.

Reverse Outlining

If you are the sort of writer who writes best by dumping your thoughts out on the page, you will still need to go back to make sure that the structure of your argument makes sense. You can do this by reverse outlining.

Read through what you have written and write a brief summary of each paragraph in the margin. Use these summaries to form an outline. Rearrange this outline into a logical order. Finally, rearrange your draft to match this new order.

Drafting

Writing Out of Order

Many beginning writers try to write their papers from start to finish, which often causes them to become stuck. Try moving around your draft instead, fleshing out the different parts as your thoughts about those sections become clearer.

Verb Tense

As you draft, remember that the past tense is used for completed actions and observations as well as conclusions about specific experiments. The present tense is used for making generalizations and for discussing accepted truths or principles.

Paragraphs

A paragraph is a unit of thought. Organize each paragraph around a central idea. Too many ideas can clog a paragraph and leave your reader without a clear sense of focus. Make sure that the main idea of a paragraph is clear to the reader by using topic sentences. Link paragraphs to each other using transition words or phrases.

Note: For more infomation on paragraph formation, please see our "Paragraphs" handout.

Introduction

The introduction provides context for your argument. Introductions move from the known to the unknown and from the general to the specific. Moving towards the specific and unknown shows the gap in the conversation and the importance of your question and argument.

During your first draft, don't worry about producing a polished introduction. Sketch its shape, and then concentrate on writing the body of your paper. Return to the introduction once you have finished your other sections: you will be better prepared to set up the context for your specific argument once you have already written it.

Note: For more infomation on writing an introduction, please see our "Introductions" handout.

Materials and Methods

The purpose of the "Materials and Methods" section of a paper is to provide enough information so

that other researchers can evaluate your experiments and, if necessary, replicate them. Arrange elements chronologically or from most to least important. Passive voice is usually preferred in this section.

Note: For more infomation on writing a "Materials and Methods" section, please see our handout on this topic.

Results

The "Results" section is more than a collection of data from your research: a results section works to interpret the data.

Data: Resting reading rate was 40 lines per minute after use of metronome.

Interpretation: Resting reading rate increased to 40 lines per minute after use of metronome.

When writing the results for specific experiments, be sure to provide the purpose for the experiment, the experimental approach, and—of course—the results.

While you will want to interpret your data as you present it, leave general conclusions and comparisons to other studies for your "Discussion" section.

Note: For more infomation on writing a "Results" section, please see our handout on this topic.

Discussion or Conclusion

Your "Discussion" or "Conclusion" section is the opportunity to place the information back into context for the reader. This section has the opposite shape of an introduction, moving from specific to general and known to unknown.

Start by providing the answer to your research question and your supporting evidence. You will then want to compare your study to those of others and indicate any limitations your study has. Finally, give a brief summary and address the larger significance of your findings.

Note: For more infomation on writing a "Discussion" section, please see our handout on this topic.

Revision, Editing, and Proofreading

Once you have finished a draft, let it sit for a while before revising. You might also have a peer look over it for you.

Revision

When you revise, you focus on the big picture of your paper. Revision is often described as a time of "re-visioning," meaning that you reimagine larger aspects of your paper that aren't working. As you revise, focus on your rhetorical situation, your argument, and your overall organization.

Note: For more infomation on revision, please see our handout on this topic.

Editing

When you edit, you improve your text at the sentence level. To do this, try reading the draft out loud. Edit with your audience in mind: refine your sentences until they are clear, concise, and cohesive. Pay special attention to issues with voice, verb tense, pronoun reference, and parallelism.

Note: For more infomation on editing, please see our handout on this topic.

Proofreading

When you proofread, you look for errors with grammar, spelling, and punctuation. This is best done on a hard copy of the manuscript. As with editing, you will probably want to read the text out loud. You might even want to consider reading backwards, which helps defamiliarize the text in your mind and makes typos easier to catch.

Note: For more infomation on proofreading, please see our handout on this topic.

References

Booth, W.C., Colomb, G.G., & Williams, J. M. (2008). *The craft of research.* Chicago, IL: University of Chicago Press.

Hofmann, A.H. (2010). *Scientific writing and communication: Papers, proposals, and presentations.* New York, NY: Oxford University Press.

Turabian, K.L., Booth, W.C., Colomb, G.G., & Williams, J. M. (2013). *A manual for writers of research papers, theses, and dissertations* (8th ed.). Chicago, IL: University of Chicago Press.