Clear Scientific Writing: Tools for the Writing Process

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www.uh.edu/writingcenter
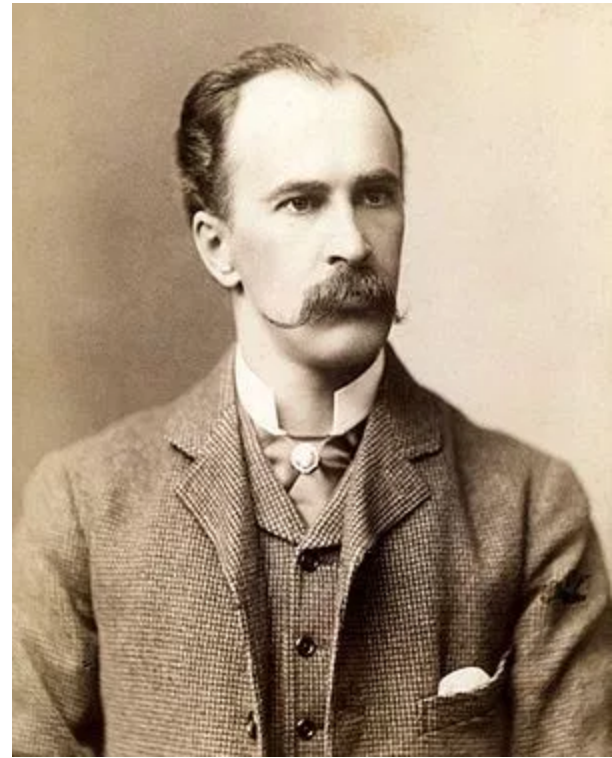
Clear Scientific Writing

- Why is this kind of writing important?

"In science, the credit goes to the man who convinces the world, not to the man to whom the idea first occurs."
--Sir William Osler

This is high-stakes writing!

Clear Scientific Writing

- Why is it high stakes?
  - Funding grants
  - Conference proceedings/paper publication
  - Proposal acceptance

You have to learn to write well to communicate your ideas effectively!

Why Talk About Process?

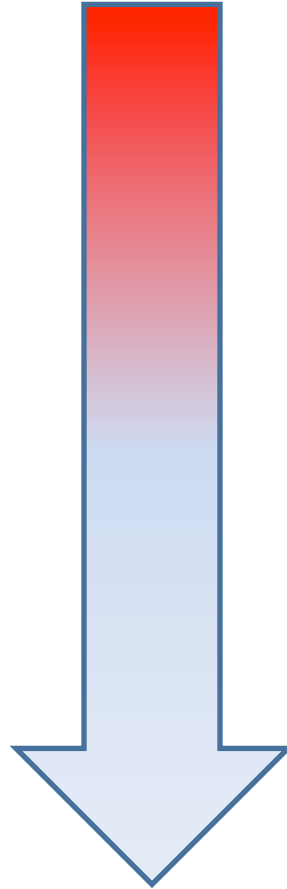Writing doesn't "just happen;" it's a process

• A good process will help you consistently create a good product

• Process requires the right tools to work well

Game Plan: Two Lectures

Today:
Higher order writing concerns

Next time:
Lower order writing concerns

- Audience/Purpose
- Thesis
- Paragraph Development
- Organization

- Sentence structure
- Punctuation
- Word choice
- Spelling

Audience

- Who are you targeting?
- Why consider them?
  - Be on the same page with them, so...
  - They can keep up with you
- How to do it?
  - Boil down ideas
  - Make the ideas EASY to understand and show the connections between ideas

TOOL #1: AUDIENCE ANALYSIS
Questions for consideration

- Who is your audience?
- Do you think your audience is interested in the topic? Why or why not?
- What your audience already know about the topic?
- What does your audience need to know about the topic?
- What experiences has your audience had that would influence them on the topic?
- What do you hope the audience will gain from your text?

Exercise 1: Know your audience

Your starring in an informational video about UH. What would you say and how would that change based on your audience?

- What would you say to...

    A high school student thinking about coming to UH

    An alumni thinking about donating to COSC

    A new graduate student in COSC

Purpose

- Why consider it?

  If you don't have a point or purpose why write anything at all???

- Identifying purpose

  1st Identifies gaps in knowledge (problem)

  2nd Fill gaps in knowledge or attempts to identify an answer (solution)

Exercise 2: Name your Audience & Purpose

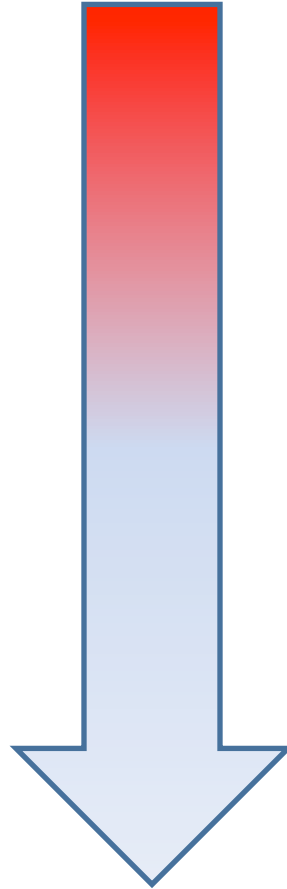Write on a piece of paper what you are writing about or the PURPOSE of your research.

Then, after you have stated the purpose, identify your audience. What do they know, what don't they know, what do they need to know.

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Thesis
Writing Strategy: Think about Purpose

Everything in your Composition /Paper	=	Thesis

http://leo.stcloudstate.edu/acadwrite/thesistatement.html

TOOL #3: Intro/Conclusion Questions

- Introduction
    - "What question are you trying to answer?"
    - "What is the context for your work?"
    - "What are you trying to accomplish?"

- Conclusion
    - "So what?"/ "And?"
    - "What have I already said?"
    - "How does it all fit together?"
    - "What are the implications?"

http://writingcenter.unc.edu/handouts/conclusions/

Exercise 3: Analyze your own Writing

Identify the thesis statement in your introduction

Homework #7

Introduction for your Research Paper

Write the Introduction section of your research paper. There are many ways to write an Introduction but in this assignment we will follow a particular template to write an Introduction. We discussed the six questions courtesy Widom (copied below) to help us think about the components of an Introduction of a research paper. Start by copying and pasting the questions to your text editor. Then, write a one-paragraph response to each question directly below each question. When you are done, you can delete or comment the questions. There you have your introduction!
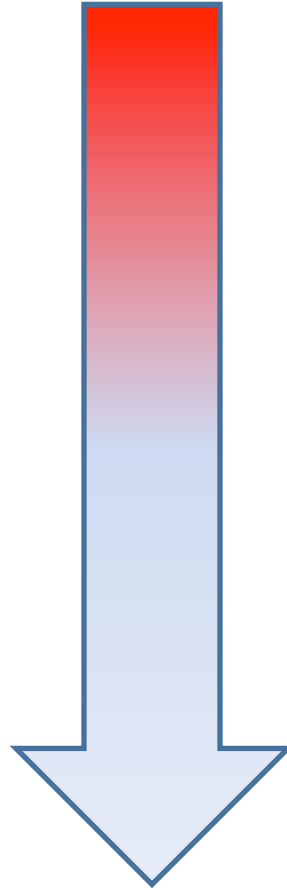
Questions to consider:

- What is the problem?
- Why is it interesting and important?
- Why is it hard? (E.g., why do naive approaches fail?)
- Why hasn't it been solved before? (Or, what's wrong with previous proposed solutions? How does mine differ?)
- What are the key components of my approach and results? Also include any specific limitations.
- Summary of results and contributions?
- Please use IEEE 2-column format for this submission. Your submission should be 1-1.5 pages in length.

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Paragraph Development

- Identify the Problem

   At each level of the writing process, you are providing a solution to a specific kind of problem.

- Paragraph level: topic problem
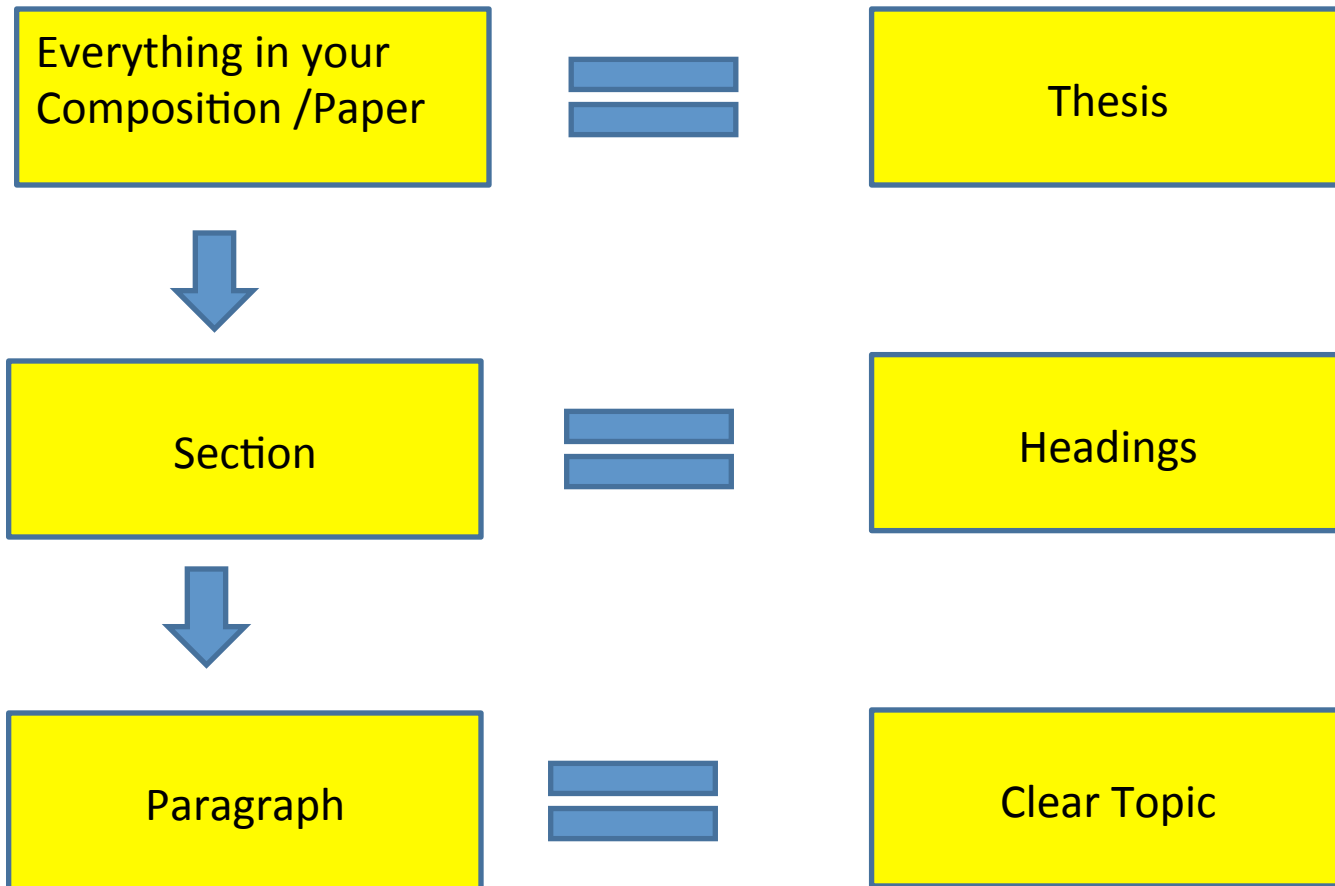
   Topic sentence
   Topic development
   Conclusion/transition

   Paragraph purpose: develop a single idea (topic) for writing that connects to main idea

Writing Strategy: Think about Paragraph Development

Everything in your Composition /Paper	=	Thesis
Section	=	Headings
Paragraph	=	Clear Topic

TOOL #4: TYPES OF PARAGRAPH DEVELOPMENT

Development by detail

– Expand on a general topic sentence using specific examples or illustrations

Development by comparison and contrast

– Describe two or more things which have something, but not everything, in common

Development by process

– Describe something going step-by-step, usually in chronological order

Development by combination

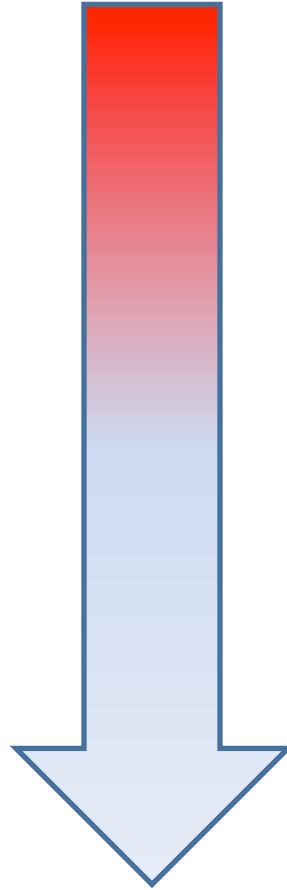– Combination of one or more types listed above

Exercise 4:How will you Develop?

- Think of some of the areas that you have to discuss within your research paper. How will those paragraphs develop? What types of paragraph development will you use?

- If you do not know what you will need to discuss take a second to outline the topics you will need to include in your research

Game Plan: Two Lectures
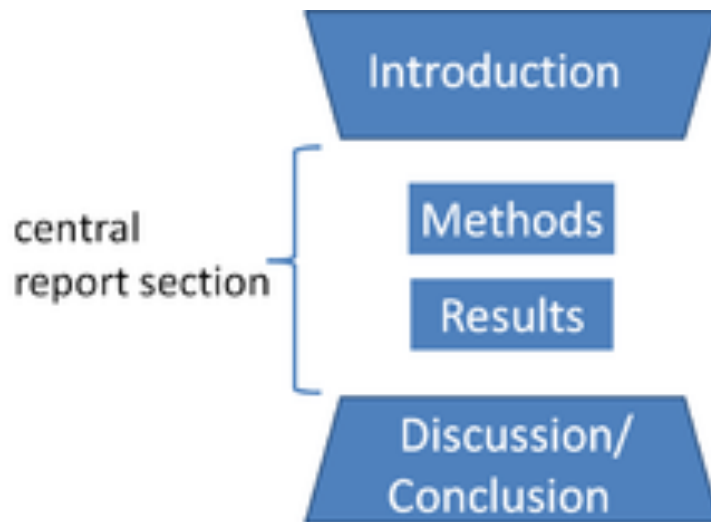
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Organization: REMEMBER IMRaD

In scientific writing, **IMRaD** (Introduction, Methods, Results, and Discussion) refers to a common organization structure. **IMRAD** is the most prominent norm for the structure of a scientific journal article of the original research type

IMRAD format

- Introduction
- What problem was studied? What others and you did?

- Methods
- How do you did it?

- Results And
- What you found out?

- Discussion
- What your findings mean?... and future plans

Remember: writing helps you to think and to learn. Don't misjudge your audience. They can tell you when you are bluffing and when you don't believe what are you saying or doing. Write clear and simple, the science is not an entertainment.

TOOL #5: REVERSE OUTLINING

- In the left-hand margin, write down the topic of each paragraph. Try to use as few words as possible. When revising your own work, these notes should tell you if each paragraph

Purpose: When revising, these notes should tell you if each paragraph is focused and clear.

- In the right-hand margin, write down how the paragraph topic advances the overall argument of the text.

Purpose: When revising, these notes should tell you if each paragraph fits in the overall organization of your paper. You may also notice that paragraphs should be shifted after completing this step.

https://owl.english.purdue.edu/owl/resource/689/1/

Exercise 5: Self-Assessment

- Incorporate these 5 tools into your writing process
  - Audience analysis
  - Examples of purpose
  - Introduction/conclusion questions
  - Types of paragraph development
  - Reverse outlining
- Learn how to self-assess a piece of writing
- Examine your writing process

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