Objectives
- To develop an understanding of the method of science and the writing process.
- To successfully write technical/scientific documents.
- To properly edit technical/scientific documents thoroughly and accurately.

Writing is………
- “A skill that requires knowledge of the subject and practice. It is an art comparable to playing a musical instrument or a game…..” (Jones & Keene, 1971, p14).

Problem:
- Some scientists, managers, engineers, technicians and others who have never written anything except lab reports and school essays are indignant when their report or paper is rejected for publication or deemed unacceptable by a superior (Jones & Keene, 1971). Why?

Poor technical writing results when:
- The facts are already known to your audience.
- The author(s) do not know the facts about the subject.
- The paper is based on personal observation only (You are not the only expert).
- The conclusions are not justified by the evidence given.

Poor technical writing results when:
- The material is poorly organized.
- The author(s) uses an improper style.
- The material is not sufficiently condensed.
- Poor grammar and misspelled words are used.
- The major points are not retained throughout the paper.
- Author(s) assume the readers share the same level of knowledge of the subject.
### Science Method & Writing Process

- "The method of scientific investigation is nothing but the expression of the necessary mode of working of the human mind." *Thomas Henry Huxley*
  - To write technically, one must understand the method of science.
  - A technical writer will use some variation of the scientific method to arrive at knowledge.
  - Technical/Scientific knowledge is presented using the writing process.

### The Method of Science: Seven Steps
1. Define the Problem
2. Summarize previous works
3. Compare similar phenomena
4. Form a hypothesis
5. Test the hypothesis
6. Publish the results
7. Establish a Theory

### Define the Problem
- Requires objectives, not a vague ambition to find out something
- It must be based on the existing knowledge (what will this existing knowledge permit?)

### Summarize Previous Works
- Has the problem already been solved?
- What have other scientists discovered about this subject?
- What do we already know about this topic?
  - Prescribed Burning Practices?
  - Female Ovarian Patterns in Cervids?
  - Colostrum Effects on Foals?

### Identifying a Technical Issue
- Take the issue you have identified and write it as a problem
  - Issue: Americans need to select better diets to prevent heart disease, obesity, and high blood pressure.
  - Problem: What diet should I follow to reduce the risk of high blood pressure?
  - Issue: The new Farm Bill and the importance of maintaining it in its current form.
  - Problem: What impact will maintaining the current Farm Bill have on Texas cattle producers?

### Compare Similar Phenomena
- Think outside the box. Do similar problems exist?
- How were these problems solved?
  - For example, perhaps you are attempting to decrease the production time period for catfish filets from one year to six weeks.
  - Are there or were there similar problems?
  - Comparisons?
Form a Hypothesis
- With a record of all previous work related to the subject, what is a tentative answer to the problem?

Test the Hypothesis
- Conduct the study using the proper research methodology
  - True experiment?
  - Quasi-experiment?
  - Descriptive Research?

Publish the Results
- Technical/Scientific Writing: the presentation of written information
  - Introduction & Background Information
  - Problem & Objectives (Hypotheses)
  - Research Methods
  - Findings (Results)
  - Conclusions & Recommendations

Establish a Theory
- Theory evolves from the findings.
  - The Great Man Theory
  - Darwin’s Theory
  - Jung’s Theory

Steps in the Writing Process
- Situational analysis
- Discovery
- Arrangement
- Drafting and revising
- Editing

Situational Analysis
- Analyzing the topic, purpose, and audience
  - Establish purpose
  - Determine reader’s attitudes and needs
  - Determine scope of coverage
- Bringing thoughts from nowhere to somewhere
- Make decisions about content and style based on audience and persona
**Persona**

- The role the writer has, or assumes, when writing
- Relates to the position of the writer and his or her relationship to the audience and the situation

**Questions: Audience and Persona**

- What is the level of knowledge and experience of your reader?
- What is the reader’s point of view?
- What is your relationship to the reader?
- What is your reader’s attitude about what you are going to say?
- What persona do you wish to project?
- What is the influence of international culture?

**Discovery**

- Finding the information to meet the needs of your topic, purpose, audience, and persona
- Use a variety of sources to locate information for your topic
- Take the information you have gathered to create new information that did not exist before

**Arrangement**

- Taking material from the discovery step and roughing out a plan or developing a complete outline
- Different methods of arrangement:
  - Chronological
  - Sequential
  - General to specific
  - Specific to general
  - Cause/effect
  - Division/classification

**Drafting**

- Begin writing after finishing the outline and arrangement
- Maintain a consistent point-of-view when writing the rough draft

**Revising**

- Polishing the rough draft in terms of:
  - Arrangement and content
  - Logic
  - Style
  - Graphics
  - Document design
- Consider having colleagues read the rough draft for comments and suggestions
Editing
- Final checking of:
  - Mechanics
  - Documentation
  - Graphics
  - Document design
  - Grammar
  - Style
- Be careful when using spell, grammar, and style checkers with word processing programs

A Comparison
- The Method of Science
  - Define the Problem
  - Summarize Previous Works
  - Compare Phenomena
  - Form a Hypothesis
  - Test a Hypothesis
  - Publish the Results
  - Establish a Theory
- Process of Writing
  - Situational Analysis
  - Discovery
  - Discovery
  - Arrangement
  - Arrangement
  - Drafting and Editing
  - Revising

Evaluation
- Future work role