SCIENTIFIC WRITING AND PRESENTATION
ENT-402

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Course Description

- Skills necessary to write a thesis
- Prepare professional material for presentation or publication

Course - Theory

- Introduction
- Literature search for entomological information, citation
- Collection of data and tabulation
- Analysis and interpretation of research data
- Report writing
- Lab/field experimental designs
- Concepts of synopsis, thesis, research paper, research project and monographs
- Presentation skills

Course – Practical

- Use of internet sources and databases for entomological information
- Layout of experiments; collection of data, tabulation, analysis and interpretation of research data
- Writing synopsis, thesis, research paper, research project and monographs
- Preparation and delivery of multimedia presentations
- Visit and use of digital libraries

Scientific Writing

In science the credit goes to the man who convinces the world, not to the man to whom the idea first occurs.

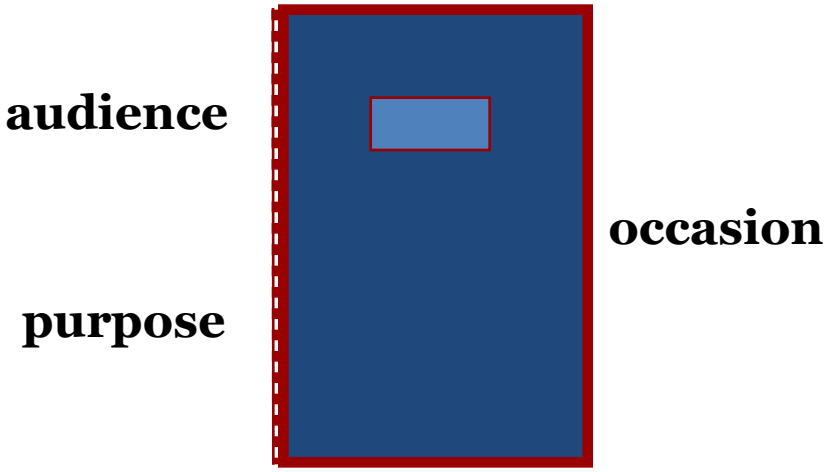
- Sir Francis Darwin

The objective of scientific communication is to accurately and clearly communicate (new) scientific knowledge, hence it is intimately linked with the scientific method

Presentation Objectives

Importance of Scientific Writing

Key Principles



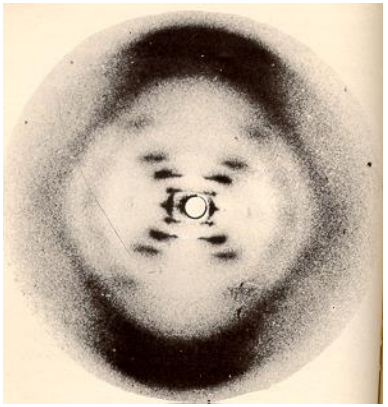
Impact on Others

Space Shuttle Challenger (January 28, 1986)

- Explosion was caused by failure of O-rings in the solid rocket boosters
- Engineers knew of O-ring problems well before fatal launch
- Engineers failed to communicate seriousness of problem

A Matter of Difference

1. Subject Matter



2. Writing Constraints

audience

purpose

occasion

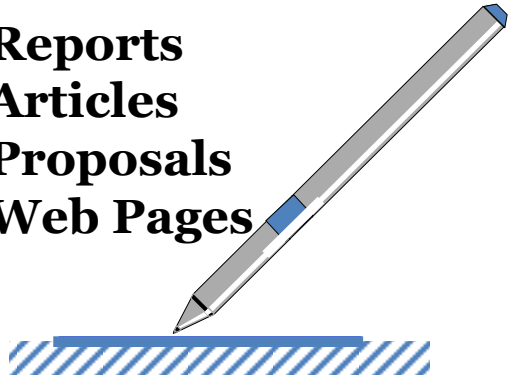
3. Purpose of Writing

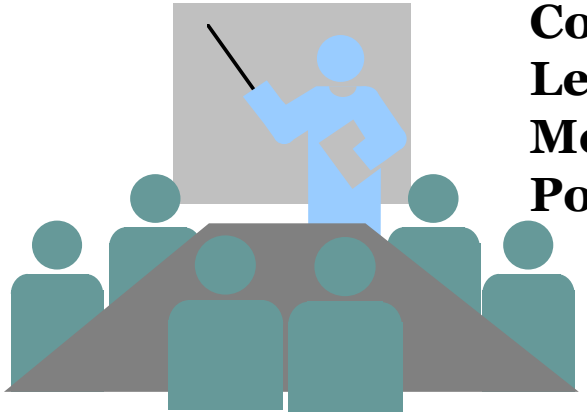
To inform

4. Writing Style

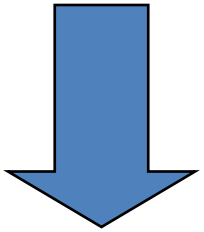
Communication Needs

Reports
Articles
Proposals
Web Pages





Conferences
Lectures
Meetings
Posters



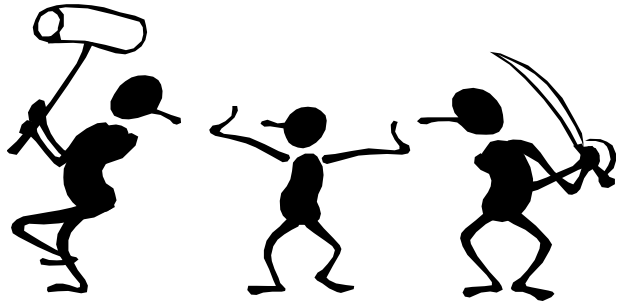
specific technical audiences

general technical audiences

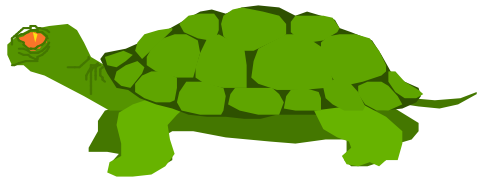
non-technical audiences

Writing Stages

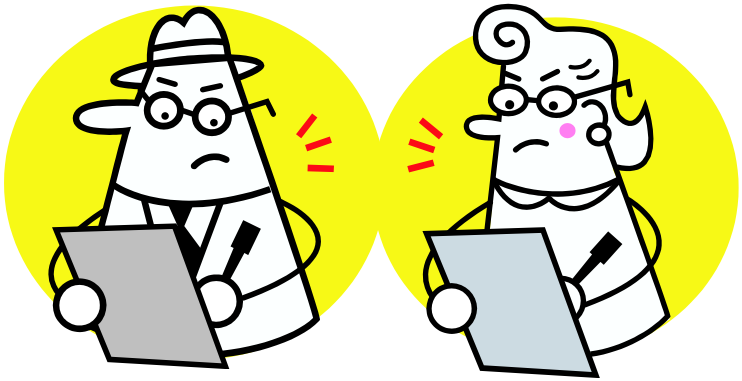
1. Getting in the Mood



2. Writing the First Draft



3. Revising, Revising, Revising

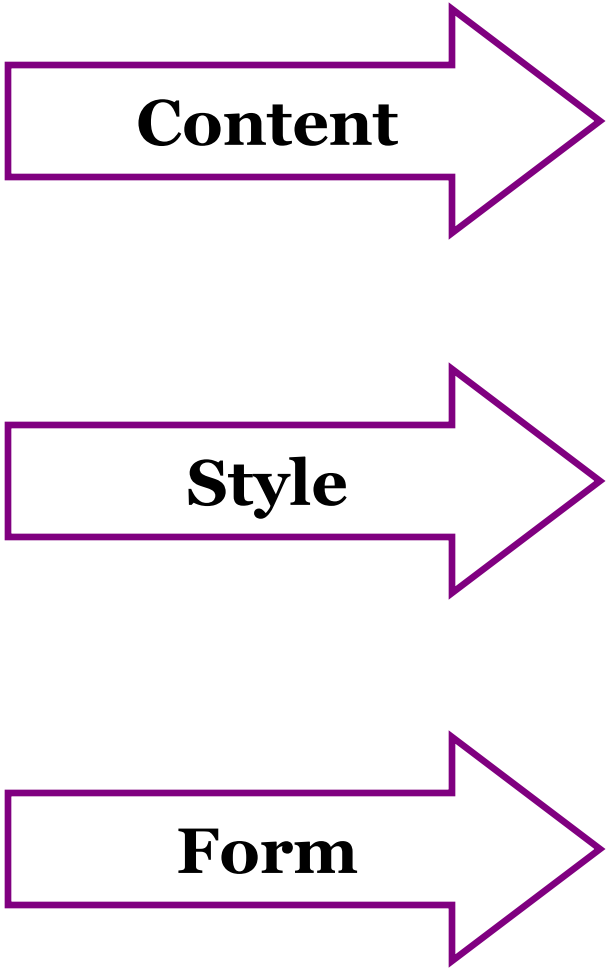


4. Finishing

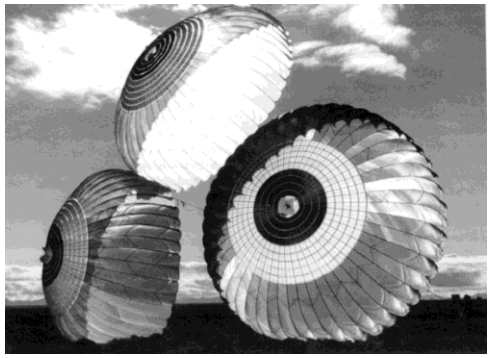
In the Beginning

- Begin by analyzing your constraints
  - Audience
    - Who they are
    - What they know
    - Why they will read
    - How they will read
  - Occasion
    - Format
    - Formality
    - Process and deadline
  - Purpose
    - To inform

Aspects Affecting Reader



Style What You Control



Illustration

Structure

Language

words
wordswords
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Organization & Presentation

- Check the overall organization.
- Check sentence structure and style.
- Check paragraph structure.
- Check format.
- Check documentation.

The Scientific communication path

- Define the question
- Gather information and resources
- Formulate hypothesis
- Perform experiment & collect data
- Analyze data
- Interpret and draw conclusions for new hypotheses
- Publish/communicate results

What are common modes of scientific communication?

- Writing scientific papers
- Making a scientific or technical presentation
- Writing research or project proposal
- Extracting, searching & creating Web pages

Select a Writing Mentor

- Review Journals for writing style.
- Identify a writing mentor to assist with thinking through and reviewing paper.

How is scientific writing different from other kinds of writing?

- Scientific writing is not just writing about science
- It is the technical writing that scientists do to communicate their research to others.
- Scientific writing is predicated on the rigors of scientific inquiry, so it must reflect the same precision as that demanded in the research process.
- Scientific communication *demands precision* (the precise use of words and phrases), clarity, and economy.
- This distinction is an important one because the writer is communicating highly technical information to others who might, or might not, be as knowledgeable; they may be from a different discipline; they may, or may not, be a native speaker of the language used.
- Communicating facts, figures, and methods used in research—as well as the description of the results—has to be precise and exact.
- The research question, hypotheses, methods, analysis, and conclusions must be stated clearly and simply.

What does it mean to write clearly and precisely?

- First, writers should focus on the words they use and their punctuation.
- Subtle differences in word choice or punctuation can have significantly different meanings.

HERE ARE A FEW EXAMPLES:

- In some fields, “de-stabilized” does not mean “not stable”; it means less stable than before.
- The sentence “Isotopes, which were discovered in 1853, are radioactive,” reads as if all isotopes were discovered in 1853. What the writer intended to say, however, is that “The isotopes that were discovered in 1853 are radioactive.”

Final Thought

- Our greatest battles are that with our own minds. *- Jameson Frank*
- Education is not filling a bucket, but lighting a fire. *- William Yeats*
- There is one thing stronger than all the armies in the world, and that is an idea whose time has come. *- Victor Hugo*