Writing Across the Curriculum Program

APPALACHIAN STATE UNIVERSITY®

Writing About Chemistry

I. General Purpose and Audience

Writing is considered a "threshold skill" in chemistry, as it is the essential way chemists communicate with readers. Chemists ask questions about the physical world, consult the existing chemical literature for clues to answer these questions, design and implement experiments to answer questions, and communicate their results to others. Chemists present data clearly, interpret results thoroughly, and cite previous peer-reviewed work frequently. When chemists wish to include their results in the chemical literature, a research article is written which is then peer-reviewed by experts in the field. Chemists use clear, direct language in their writing. They may create arguments intended to persuade or convince readers that, for example, what the writer does is important and deserves funding and that the researchers are competent and credible. **Audiences** include other chemists, professors, students, the general public, fellow professionals at conferences and conventions, and grant-funding agencies.

II. Types of Writing

- Lab notebooks
  - Goals
  - Proposed design
  - Actual process, methods
  - Time, date, and colleagues involved
  - Observations and data
  - Measurements
  - Interpretation of results and follow-up plan
  - Witness signature(s)
- Research articles (*i.e.* the chemical "literature")
  - Title
  - Authors
  - Abstract
  - Introduction
  - Experimental details or theoretical analysis
  - Results
  - Discussion
  - Conclusions and summary

    - References
- Lab reports
    - Format is modeled after literature research reports (or just "see research article")
- Research article reviews
- Review articles
- Research proposals
    - Title
    - Introduction (brief summary)
    - Background (Literature review and research question)
    - Proposed Research (with rationales)
    - Budget justification
    - References
- Research proposal reviews
- Magazine articles
- Oral and poster presentations

III. Types of Evidence

- Data from site studies, surveys
- Observations of specimens with special equipment (microscopes, e.g.)
- Observations and measurements from experiments
- Data from other published reports
- Data may be *quantitative* (counted) or *qualitative* (measured without numbers)
  [Alternative explanations of results may be offered since evidence may lead to other plausible explanations]

IV. Conventions

- Writing should be clear, precise, concise, correct, and objective.
- Use gender-neutral words.
- Use strong verbs and avoid "to be" verbs.
- Use active voice for notebooks and oral presentations.
- Use passive voice for formal lab reports, experiments, and research proposals.
- Use past tense for lab reports.
- Rarely use direct quotations; paraphrase instead.
- Write in standard, formal English.

V. Documentation Style

American Chemical Society (ACS) style sheet

(Different journals may require different citation styles; writers should write in the documentation style of the journal in which they seek publication—such as the National Science Foundation.)

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Sources consulted

Beall, Herbert and John Trimbur. *A Short Guide to Writing About Chemistry.* 2nd ed. Longman, 2001.

Cullick, Jonathan S. and Terry Myers Zawacki. *Writing in the Disciplines: Advice and Models*. Bedford/ St. Martin's, 2011. D-4-10.

Davis, Holly B., Julian F. Tyson, and Jan A. Pechenik. *A Short Guide to Writing in Chemistry*. Pearson/ Longman, 2010.



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