

# WRITING ABOUT SCIENCE

## I. General Purpose

Scientists write lectures, grant proposals, research papers, literature reviews, letters of recommendation, committee reports and critiques, progress reports, internal memos, and public oral presentations. Writing should be clear, concise, and logical in creating convincing arguments.

**Audiences** include fellow researchers, professors, students, government or business communities, or the general public. Scientific writers may also respond to editors and reviewers.

## II. TYPES OF WRITING

### 1. Laboratory Notebooks

- Table of contents/ Dates/ Title/ Purpose/ objective of experiment
- Materials and Methods/ Results (data gathered, observed)
- Analysis and discussion: assessment, interpretations, conclusions
- Acknowledgments

### 2. Research Papers and Lab Reports

- Abstract/ Introduction (context and purpose/ hypothesis)
- Materials and methods/ Results (including figures and tables)
- Discussion (interpretation of results, comparison to other research)
- References/ Sources

### 3. Literature Reviews

- Reviewing previous research
- Comparing, contrasting approaches/ Proposing alternative theory
- Informing biologists about latest advances
- Analyzing methods and interpretations from journals
- Abstract, introduction, discussion of reviewed research, conclusion, references

### 4. Research Proposals

- Pose significant question and hypothesis
- Suggest experiment(s) to test hypothesis
- Detailed budgets if seeking funding
- Carefully conceived experimental design
- Could be persuasive in nature, “selling” the idea to a reviewer, using bold-faced type, underlining and bullets

### 5. Poster Presentations/ Slide shows/ Powerpoints (for professional conferences)

- Abstract/ introduction to project
- Description of methods, subject(s) of research, results, conclusions
- Easy-to-read graphs and tables/ focus on clarity and readability
- Acknowledgements

### 6. Writing for the public

- Clear, succinct writing that explain complex principles to the general public

### III. TYPES OF EVIDENCE

- Data from site studies, surveys
- Observations of specimens with special equipment
- Observations and measurements from experiments
- Data from other, published reports
- Data may be *qualitative* (counted) and/or *quantitative* (measured without numbers)

[Alternative explanations of results may be offered since evidence may lead to other plausible explanations]

### IV. WRITING CONVENTIONS

- Objective reporting; clear and concise writing
- Emphasis is on the data, not on writer or style of writing
- Scientists often use passive voice to describe experiments
- Active voice is used to convey information clearly and efficiently
- With active voice, 1<sup>st</sup> person may be acceptable for clarity but is used rarely
- Direct quotation is rare; paraphrase is more prevalent
- Use past tense to describe materials, methods, and results of experiments
- Use present tense to describe published findings of other studies
- Specific scientific names are often used
- Support all statements of fact or opinion with evidence
- Distinguish fact from possibility

### V. CITATION STYLE

**Citation style depends on preference of professor or publication for which you are writing**

- ACS (American Chemistry Society)
- Council of Science Editors (CSE) formatting and citing sources
  - *Name-year* system: Author's last name and date are cited in text
  - *Citation-sequence* system: Each source is assigned a number, which identifies the source each time it is used
  - *Citation-name* system: each source is numbered in the order it appears in the alphabetized list at the end of the paper; corresponds to the same source each time

See *Scientific Style and Format: The CSE Manual for Authors, Editors, and Publishers*, 7<sup>th</sup> edition

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Sources:

**Cullick, Jonathan S. and Terry Myers Zawacki. *Writing in the Disciplines: Advice and Models*. Boston: Bedford/ St. Martin's, 2011. D-4-10.**  
**Pechenik, Jan A. *A Short Guide to Writing About Biology*. 8<sup>th</sup> ed. Boston: Pearson, 2013. Print.**