I. GENERAL PURPOSE/AUDIENCE

Biology is the study of living things: what they are, how they function, how they interact with each other, and how they evolve**.** Biologists write reports that analyze data from experiments, reviews of research performed by other scientists, and proposals for grants that may fund their research. They may write lectures and articles for books and magazines, and they may also consult with government agencies to offer opinions on various issues such as stem cell research or climate change. Biologists may write for a wide variety of audiences: fellow researchers and other academics, students, government officials, or business professionals.

II. TYPES OF WRITING

a. Research papers and argumentative essays
b. Lab reports and field reports, typically including an abstract, introduction (context and purpose), materials and methods, results (based on observations), figures and tables, discussion of interpretations, and references
c. Lab notebooks, typically including a table of contents, data from each experiment, title of research, purpose, materials and procedures, results, analysis of data, discussion and assessment of experiments, conclusions, and acknowledgments
d. Literature reviews (surveys of literature, evaluations, analysis, comparison/contrast of other research, perhaps presenting opposing theories or areas for future research)
e. Research proposals and reports (develop background, pose a question, offer hypotheses, and present research plans to test the hypotheses)
f. Oral and poster presentations (presented at conferences or conventions)
g. Committee reports
h. Popular science articles (condense complex material to an understandable language)
i. Critique of research paper (usually presented in list form)
j. Lectures and group presentations

III. TYPES OF EVIDENCE

Primary Sources: Original observations leading to experiments, including detailed information about how observations were made and experiments were conducted (Pechenik 34). These include descriptions, measurements, figures and tables, statistics, and experiment results**.** Quantitative and qualitative data.

Secondary Sources: Summaries based on the primary literature, such as **j**ournal articles, popular science magazines, and textbooks; popular sources, such as *National Geographic, Natural History, Seed Magazine, Climate Change Report*, and *Science Today*; and peer-reviewed sources, such as *Environmental Etymology, Oeclogia, Journal of Insect Science,* and *Science.*

Indexes like Institute for Scientific Information (ISI), Biological Abstracts, BIOSIS Previews, Basic BIOSIS, and Google Scholar to locate articles by topic. Medline is another useful database that can help you locate articles.

IV. WRITING CONVENTIONS

- Write clearly and concisely, omitting unnecessary or redundant words.
- Use passive voice to describe the steps in studies and experiments in the Methods section.
- Use active voice to convey information clearly and efficiently. (First person can be used to help with clarity, for example, in an abstract or discussion.)
- Direct quotation is very rare and discouraged; paraphrasing is more common.
- Use past tense to describe materials, methods, and results of experiments.
- Use present tense to describe published findings of other work.
- In lab reports or experiments, keep detailed, accurate notes.
- Cite sources and give intellectual credit to the original researcher(s).
- Collaborative writing is common.

V. COMMON TERMS AND CONCEPTS

Biodiversity
Community Ecology
Community Interactions
Ecological Interactions
Ecosystem Function
Evolutionary Relationships
Nutrient Cycling
Plant and Insect Interactions
Plant Chemistry
Primary Productivity
Genomics

VI. CITATION STYLE

While APA is sometimes used in Biology, citation formats differ from journal to journal, and for most writing you should follow the convention of a chosen journal. Use very recent issues of a journal to determine the format of citations in the text and the references page. In general, do not use footnotes to cite in-text; instead, cite parenthetically using the author's name and date. Example: (Coolidge and Roosevelt, 2012). See *Scientific Style and Format: The CSE Manual for Authors, Editors, and Publishers*, 7th edition.