

EXPECTATIONS FOR WRITING IN CHEMISTRY

Writing in Chemistry requires accuracy of style and substance: it communicates an appreciation of chemicals, their properties, their dangers, their value, and their usefulness and influence on society; it addresses issues of data, instrumentation, mathematical techniques, safe laboratory procedures; and it presents analytical reasoning that is grounded in accurate scientific knowledge. Throughout their course work, Chemistry majors learn to think and write in the professional manner required of chemists.

Upon graduation, Clarion Chemistry majors will exhibit the following abilities.

WORKING WITH DATA & TEXTS

CRITICAL LITERACY & ANALYSIS:

Thinking in chemistry requires attention to directions, data, calculations, and procedures; application of analytical reasoning and computational skills for data analysis; the ability to analyze and evaluate professional literature; and the ability to synthesize chemical information and issues with real life situations.

Students comprehend and follow directions.

Benchmark indicators may include:

- Writer differentiates between and responds appropriately to types of tasks (i.e., record, explain, discuss, analyze, etc.).
- Writer follows procedure and clearly presents instrumentation, collection of data, and analysis or results and errors.

Students locate and select appropriate professional print and visual resources related to chemical concepts and issues.

Benchmark indicators may include:

- Writer selects current primary sources from chemical literature.
- Writer differentiates between primary and secondary sources.
- Writer differentiates between reputable and disreputable web sites.
- Writer analyzes professional literature.
- Writer compiles a comprehensive bibliography on a specific topic.

Students apply learned concepts to scientific situations.

Benchmark indicators may include:

- Writer articulates purpose of experimental work.
- Writer records observations.
- Writer reports mathematical manipulations and calculated values.
- Writer describes results.
- Writer discusses interpretation and significance of results.

- Writer compares results with accepted or theoretical values.
- Writer identifies sources of error in chemistry and instrumentation involved in analysis.

WRITING

RHETORICAL AWARENESS:

Students understand the rhetorical rules governing form and content and distinguish between various genres within the field of Chemistry including the lab report, laboratory notebook, literature report, research paper, comprehensive bibliography, presentation summary, poster, and power point presentations.

Benchmark indicators may include:

- Writer uses appropriate tone, voice, and formality expected of writing in chemistry.
- Writer uses third person, past tense, passive voice in lab reports.
- Writer uses appropriate section headers for scientific documents.
- Writer uses graphs, figures, charts, and tables as they pertain to production of various scientific documents.
- Writer describes instrumentation where appropriate.
- Writer demonstrates knowledge of format, style, and content of professional literature.

WRITTEN LANGUAGE USE & COMPETENCY

Students write with control of the conventions of Standard Written English.

Benchmark indicators may include:

- Writer presents a text free of surface errors in punctuation, grammar, spelling, and diction.
- Writer controls sentence boundaries and structure.
- Writer controls paragraph boundaries and structure.

Students approach writing as a process in which ideas and clarity of expression develop over time.

Benchmark indicators may include:

- Writer plans and organizes writing project.
- Writer drafts written work.
- Writer revises content and style from draft to draft.

Students establish and maintain relevant focus in writing.

Benchmark indicators may include:

- Writer presents information relevant to the topic.
- Writer offers thorough explanation of topic.
- Writer demonstrates an awareness of a scientific audience.

Students organize information into a unified discussion.

Benchmark indicators may include:

- Writer offers logical sequence of ideas.
- Writer offers clear connections between data and ideas.

Students synthesize connections between applied science and professional literature.

Benchmark indicators may include:

- Writer makes connections between chemical issues or advances and real life situations.
- Writer incorporates source information in support of discussion.
- Writer strikes a balance between the scientific background and the societal or environmental relevance to the topic.

SCIENTIFIC & PROFESSIONAL STYLE:

Students write in precise, unambiguous, economical style.

Benchmark indicators may include:

- Writer writes in concise yet complete and clear manner.
- Writer uses third person, past tense, passive voice in lab reports.
- Writer avoids use of contractions.

Students format documents in accordance with scientific style.

Benchmark indicators may include:

- Writer numbers pages consecutively.
- Writer titles document effectively.
- Writer uses appropriate section headers for scientific documents (i.e., Title, Objective, Instrumentation, etc.).
- Writer properly labels all graphs, figures, tables, and appendices, including sample calculations and error analysis.
- Writer creates accurate in-text citations and list of literature cited following American Chemical Society reference style guidelines.
- Writer uses professional format of journals researched.

Students write in accordance with the scientific and professional style indicative of the conventions of the discipline.

Benchmark indicators may include:

- Writer presents scientifically accurate information.
- Writer succinctly chronicles procedure.
- Writer uses graphs, figures, tables, and appendices that pertain to the project.
- Writer uses acronyms after the substance or technique has been initially named.
- Writer uses subscripts and superscripts when necessary.
- Writer uses correct formatting of numbers and equations.
- Writer prepares formal written laboratory reports in the scientific style.
- Writer prepares literature reports in the scientific style.
- Writer maintains laboratory notebook in the scientific style.
- Writer prepares research papers in the scientific style.

- Writer prepares summary of presentation in the scientific style.
- Writer prepares posters in the scientific style.

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