

CHEMICAL CHOICES/CHALLENGES Grading Rubric
(Washington State Rubric-revised¹ and Modified²)

Criteria	1 Underdeveloped	2 Somewhat developed	3 Mostly developed	4 Substantially Developed
PROBLEM <i>Identifies and summarizes the problem/question at issue.</i>	The problem is not stated or is stated in both an unclear and incorrect manner	The problem is stated in an incorrect, inappropriate, or confused manner.	The problem is stated somewhat unclearly, or the significance of the problem is unclearly presented.	A clear statement of the problem or choice is presented with reasons why the problem is important.
PERSPECTIVE <i>Identifies their own and considers other salient perspectives and positions as it is important to the analysis of the issue.</i>	The problem is considered only from a nonscientific viewpoint and /or the scientific (chemical) factors are described incorrectly.	The scientific context of the problem is superficially described. Some aspects of the scientific (chemical) context are confused and/or incorrect.	The scientific content of the problem is described in a limited manner. The scientific (chemical) variables are not clearly explained.	The context of the problem is presented with defined and/or delineated scientific terms. Variables of the experiment are carefully and correctly identified.
EVIDENCE <i>Identifies and assesses the quality of supporting data/evidence and provides additional data/evidence related to the issue</i>	Evidence is presented in a mostly incomplete manner. Units are not include in experimental data. References are not included.	Data is partially incorrect or incompletely presented. Tables and/or graphs are unlabeled or incorrectly labeled. References when included are unclear, haphazard, or inappropriate.	The data or information is presented and reference but an understanding of the meaning of the data or information is not expressed.	Evidence (experimental data or referenced information) is presented in an organized, complete and correct manner. The limitations of the evidence are discussed. (Sources of error are presented.) Consideration of other hypotheses may also be presented.
CONCLUSIONS <i>Identifies and assesses conclusion, implications and consequences.</i>	The thesis or hypothesis is restated without discussion of evidence.	The thesis or hypothesis and evidence (data) are both mentioned but there are incomplete or incorrect conclusions drawn.	The thesis or hypothesis and data are both mentioned in a conclusion but the connections drawn lack clarity.	The conclusion clearly and insightfully states how the evidence, (data or information) may uniquely support the thesis or hypothesis. If other theses are possible these are explained. Additional study may be suggested.

¹ Revised by Assessment Fellows, Miami University

² Modified by Susan Hershberger for CHM 111 HLA

Chemistry Laboratory Report Grading Rubric (Spring 2005 MU Critical Thinking WSU Revised Rubric)

Criteria	1 Underdeveloped	2 Somewhat developed	3 Mostly developed	4 Substantially Developed
Title and Purpose	Either the Title or Purpose is missing or both are present but are incorrect.	The Title and Purpose are both present but both are merely repeated from the laboratory write up, without any input from the student.	The Title is clear and concise but the Purpose of the experiment is unclear, confused, or incorrect.	The Title is clear and concise and the Purpose of the experiment is succinctly stated with thoughtful insight from the student.
Procedure and Data	The procedure is incomplete and the data is unorganized and/or unlabeled, and/or labeled with incorrect units. Equations pertinent to the experiment are missing and or mostly incorrect. Supporting values from the chemical literature are not present when appropriate.	The procedure is straight out of the laboratory notebook with no student input. The data is presented but is not well organized or the data contains some errors in how it is labeled. Supporting values from the chemical literature are not present when appropriate.	The procedure is written in the student's own words and is mostly complete. (Some minor errors are present, such as minor steps are omitted or steps added that were not done as described.) The data is organized and contains only minor errors. Supporting values from the chemical literature are present but are not referenced or are referenced incorrectly, when appropriate.	The procedure is complete and concise. The procedure contains all necessary steps of the experiment and uses the vocabulary of the field correctly. The data is organized and correctly labeled. All supporting values from the chemical literature are correctly referenced, when appropriate.
Results and Discussion	The results are partially or incorrectly identified, and their meaning only partially or incorrectly described. Limitations of the experiment are not included, and further experiments are not proposed.	The results are repeated but the understanding of their meaning is only partially or somewhat incorrectly conveyed. Graphing errors may be present. Limitations of the experiment are not included, and additional experiments are not proposed.	The results and their meaning are presented. In a manner very similar to the description in the textbook or handout. Further experiments or elaborations are not described. Limitations of the experiment are only superficially discussed.	The results and the meaning of the experiment are presented in an organized and clear manner. Additional experiments may be proposed. How the experiment might be adapted to meet a current challenge may be added. Limitations of the experiment are accurately discussed.
Conclusions	The data or results are incorrectly or only partially repeated.	The results of the experiment are restated correctly but without implication for current or other science.	The results of the experiment are restated and the implications discussed very similar to the implications described in the textbook or the lab handout only.	The results are clearly identified and the implications for current knowledge discussed. The experiment is integrated into other science knowledge, both in chemistry and other fields.