

**FORMAT FOR FULL REPORTS
USING ACS PUBLICATIONS FORMAT
CHECK ANALYTICAL TECHNICAL WRITING EXERCISE FOR SPECIFIC DETAILS**

Reports in English (100 points each)

- I. **TITLE** (1%): Use specific and informative titles with high keyword content. Avoid acronyms and subtitles.
- II. **DATES** (1%): Date experiment started: _____
Date experiment ended: _____
Date Report was submitted: _____
- III. **ABSTRACT** (3%): Abstracts are required for all reports (80–200 words) and should describe briefly and clearly the purpose of the work, the principal results, and the major conclusions. Remember that the abstract will be the most widely read portion of any formal paper and will be used by abstracting services.
- IV. **INTRODUCTION.** (10%): Should state the purpose of the work (eg. research) and must include appropriate citations (5 minimum) of relevant, precedent work but should not include an extensive review of marginally related literature. If the manuscript describes a new method, reasons must be given to indicate why it is preferable to older methods. If the manuscript describes an analysis of a substance, the competing methods must be referenced and compared. Absence of appropriate literature references can be grounds for rejection of the report.
- V. **EXPERIMENTAL.** (10%): Use complete sentences (i.e., do not use outline form). Be consistent in voice and tense.
Apparatus: List only devices of a specialized nature.
Reagents: List and describe preparation of special reagents only. Do not list reagents normally found in the laboratory and preparations described in standard handbooks and texts.
Procedure: Because procedures are intended as instructions to permit work to be repeated by others, give adequate details of critical steps. Published procedures should be cited but not described, except where the presentation involves substantial modifications. Very detailed procedures should be presented in a Supporting Information section.
Safety considerations: Describe all safety considerations, including any procedures that are hazardous, any reagents that are toxic, and any procedures requiring special precautions, in enough detail so that workers in the laboratory repeating the experiments can take appropriate safety measures. Procedures and references for the neutralization, deactivation, and ultimate disposal of unusual byproducts should be included.
- VI. **RESULTS AND DISCUSSION.** (35%): The results may be presented in tables or figures; however, many simple findings can be presented directly in the text with no need for tables or figures. The discussion should be concise and deal with the interpretation of the results. In most cases, combining results and discussion in a single section will give a clearer, more compact presentation. In this section you should show whether or not you have given any thought to what you have accomplished (or learned) in the analysis. Include applications, implications, principles **illustrated, improvements, and experience gained. It is your chance to show what you have learned. ANALYZE what you have done and draw intelligent conclusions from your results.**

Tables: Prepare tables in a consistent form, provide each with an appropriate title, and number (above table), consecutively in the order of reference in the text. Must include:
A. **Results:** Collect all results and present them as table(s). Report them with their associated standard deviations (if possible).

B. **Statistical (error) analysis:** You should list the source and magnitude of expected errors and their influence upon your results (propagation of error analysis.) Do not go on talking about your own mistakes in this section unless you really know they did affect your results and how.

C. **Accuracy and Reliability of the data:** Include in this section accepted or literature values if available for all reported quantities, and give the deviations of your experimental values from these quantities.

Figures: Prepare figures in a consistent form, provide each with an appropriate title, and number (below figure), consecutively in the order of reference in the text. Include any chemical reactions and drawings that are appropriate for the experiment.

Nomenclature: Should conform with current American usage. Insofar as possible, students should use systematic names similar to those used by the International Union of Pure and Applied Chemistry (IUPAC) and the Chemical Abstracts Service (CAS).

VII. **CONCLUSIONS (10%).** Use the conclusion section only for interpretation and not to summarize information already presented in the text or abstract.

VIII. **REFERENCES (5%):** Reference numbers in the text should be superscripted. The accuracy and completeness of the references are the student's responsibility. Use Chemical Abstracts Service Source Index abbreviations for journal names and include publication year, volume, and page number (inclusive pagination is recommended). Include Chemical Abstracts reference for foreign publications that are not readily available. List submitted articles as —in press— only if formally accepted for publication, and give the volume number and year if known. Otherwise use —submitted— or —unpublished— with the name of the place where the work was done and the date. Include name, affiliation, and date for —personal communications—. These are examples of the reference format for 1) a journal; 2) an online journal; 3) a book; 4) a chapter within a book; 5) an online resource.

1. Koile, R. C.; Johnson, D. C. *Anal. Chem.* **1979**, *51*, 741–744.
2. Rando, R.R. The Biochemistry of the Visual Cycle. *Chem. Rev.* [Online] **2001**, *101*, 881-896.
3. Willard, H. H.; Merritt, L. L., Jr.; Dean, J. A.; Settle, F. A., Jr. *Instrumental Methods of Analysis*, 6th ed.; Van Nostrand: New York, 1981.
4. Willard, H. H.; Merritt, L. L., Jr.; Dean, J. A.; Settle, F. A., Jr. *Instrumental Methods of Analysis*, 6th ed.; Van Nostrand: New York, 1981; Chapter 2.
5. *Ethylene Glycol*; Material Safety Data Sheet No. E5125; Mallenckrodt Baker: Phillipsburg, NJ, (Feb. 25) 1999, <http://www.jtbaker.com/msds/e5125.htm> , (accessed July 2001).

IX. **SUPPORTING INFORMATION (20%):** In the interest of short, more concise, and readable report, UPRM requires students to report certain types of information in an Appendix called Supporting Information (SI). These include:

- a. **ANSWER TO QUESTIONS IN LABORATORY MANUAL**
- b. **DETAILED DATA**
- c. **CALCULATIONS** (One example of each calculation)

OVERALL REPORT PRESENTATION AND NEATNESS (5%)