

Chem 228 Formal Laboratory Report 2nd half of semester

To be written in the publication style of the "*Journal of Organic Chemistry*"

General:

Publishing format is single column, right & left justified 1" margins, 12 pt font, double spaced. Your computer word processing program should do this automatically. Footnotes should be as superscripts, chemical formulas numbers should be as formulation subscripts. Structures should be typeset. Software programs that generate molecular structures and chemical equations can be found on the computers in the G-34 CLC in Schrenk Hall (eg. ChemBioOffice). Spelling and grammar are important and need to be checked.

Center for Writing Technologies, Room 114 Campus Support Facility

All Chem 228 students are expected to make use of the tutoring assistance for report writing available at the Writing Center. The tutors are aware of the information and report that is required and will be very helpful. You should make an appointment and please do not expect that you can all do your reports in the final weeks of the semester. You are expected to work on this report during the entire second half of the semester. Introduction, much of the discussion, experimental and some of the support sections can be done at any time during the semester.

In order to encourage use of this facility, I will add 5 points per visit, up to a total of 25 points as extra credit. The Center's tutors keep a record and will inform me of your attendance.

This may be done at your convenience during the Center's regular hours. (writingcenter.mst.edu/hours.html)

Tutors will give you assistance, however they are not expected to edit and perfect your work.

All students are expected to check the following references:

"Guidelines for Authors" *Journal of Organic Chemistry*, Issue #1 for any recent year.

Typical article can be found as: *J. Org. Chem.*, vol. 63, no. 19, 6610-6618, 1998.

Example of NMR charts and tables can be found in: *J. Org. Chem.*, vol. 63, no. 2, p. 231 and p. 274, 1998.

The formal report should consist of the following sections:

Title of the Paper & Authors Name and University Address

Abstract

80-100 words is typical. (Purpose, results, major conclusions, compounds, techniques)

Table of Contents & Graphics

Introduction:

This section serves to introduce the reader to the topic(s) discussed in the report. It should also provide a brief review of the subject(s) covered. The introduction should also introduce the reader to the experiments carried out, the objectives of the paper, both experimental and learning concepts, the pitfalls, safety measures, etc. It is suggested that you go to the library or find the journal online and familiarize yourself with some recent articles from the *Journal of Organic Chemistry*. Generally, this section should not be more than two double spaced pages.

Discussion:

Here you need to discuss the extent to which the objectives in carrying out the experiment were attained. You should discuss theory, mechanism, kinetics and thermodynamics if known, of the reactions that you carried out. Charts and tables should be included. You may want to address alternative routes to the final products and their merit. Suggestions for further experimental work may also be made. Comparisons of spectra with literature reference values is essential and you must discuss and compare the results of your spectra charts with those given in the literature.

Results:

Tabulate, whenever possible, your results. Quantities of materials used both in mass and in molar equivalents (mmole) should be included. Your mass yields and % yields should be included. If spectra, IR or NMR were obtained, the charts should be tabulated here. Put labeled reference and experimental IR's on the same page. Same for NMRs. An overall yield for the complete experiment must be included.

Experimental:

Each reaction should be written up in such a way that another student can carry out the experiment without having to go to additional sources. A general procedural section should discuss the general type of equipment necessary and if any special items were used. **This section should be written in 3rd person past tense.** All physical properties of all the reagents you used should be tabulated including a brief safety or toxicity column. Yields in grams, mmoles and percent must be included. Supporting Information (see below) should be attached at the end of the paper. Major spectral peaks must be included following the experimental results. All weights of materials should be followed by mmoles (i.e.....12 mg (0.0043 mmol) was added to the mixture....)

References:

Endnotes should be placed at the end of the paper. They need to be written in proper format.

Acknowledgements:

Add if appropriate. Usually your Teaching Assistant, Writing Center tutor and anyone else that provided you with assistance.

Supporting Information:

Your laboratory "yellow pages" on which you kept records of the experimental details.

All Infrared (IR) and Nuclear Magnetic Resonance (NMR) charts that were obtained during the course of the experimentation. They need to be properly identified and referenced.

A complete and concise table of the properties of all materials used for each of the steps of the reaction. The table should include molecular weights, mass or volume quantities used, molecular equivalents (mmoles), physical state and physical properties, safety and toxicity considerations.

A similar table for products of each stage of the reaction, including in addition, mass yields and percent yields. This data is also necessary in the experimental section of the report. Calculation example (method) should be show in the attachment, but not in the report. Overall yield should be calculated and included in both parts.