

Chemistry 235, Winter 2008

Writing a manuscript for *the Journal of Chemical Education*

In this project, you will take the observations, results and analyses of an experiment and write up a short manuscript for publication. The Journal of Chemical Education is a well-regarded peer-reviewed journal in chemistry education (meaning that since a lot of chemistry teachers and instructors read and reference it, it is reasonably prestigious).

The experiment I'd like you to write up is the biodiesel experiment, as done in CHE 238 this quarter. If you are not in 238 this quarter, pair up with a student who is.

Using the "Guide to Submissions" (attached, also at <http://jchemed.chem.wisc.edu/Contributors/Authors/Submissions/guideTo.pdf>) as much as possible, write a **double-spaced word-processed proofread manuscript** for the biodiesel experiment. Your motivation is to show other chemists how the experiment was done, what results can be expected, and how the product was characterized. Since part of professional presentation is learning to use software/hardware that allows you to draft figures, you should either use a scanner or ChemSketch (available free at <http://www.acdlabs.com/download/>) or other chemical drawing program to make one of the figures.

More details about the body of the text:

Start with a rationale for the experiment. Look at the biodiesel handout introduction and paraphrase. This is also a good section to include a citation from a published source.

Next, set up "The Experiment". What broad pieces can the whole biodiesel project be broken up into? Also, the sample paper has a section called "The Puzzle". Is there a puzzle in the biodiesel project, or is that not appropriate?

Next, write the experimental procedure. Use the level of detail that the sample paper, or PLKE (the lab textbook) provides. **This means not every simple step needs to be detailed!** This is another spot where a literature citation might be appropriate.

Next, give the "Results and Discussion". Start with yield information, then explain the IR, NMR, GCMS and combustion results. Many of these will require a description of the important parts of the spectrum, as the sample paper does. For the biodiesel project, the major problem was contamination by the starting vegetable oil – discuss how the spectra indicate purity or lack of purity of your product.

Finally, give the "Project Merits and Summary". Why is this an interesting or important experiment? How does this experiment fit into the larger context of an organic chemistry course (that is, what lab techniques and lecture topics does it illustrate)? What further refinements or other explorations suggest themselves?

Your communications is due in class at **6 p.m. on March 13.**

Notes on the "Guide to Submissions":

COVER LETTER, COVER SHEET, THREE COPIES — Not needed.

TITLE — The title should accurately, clearly, and concisely reflect the emphasis and content of the paper. The title must be brief and grammatically correct.

AUTHOR NAMES — Include in the byline all those who have made substantial contributions to the work, even if the paper was actually written by only one person. Use first names, initials, and surnames (e.g., John R. Smith) or first initials, second names, and surnames (e.g., J. Robert Smith). Do not use only initials with surnames (e.g., J. R. Smith) because this causes indexing and retrieval difficulties and interferes with unique identification of an author. Do not include professional or official titles or academic degrees.

INSTITUTIONAL ADDRESSES — "Math, Sciences and Social Sciences Divison, North Seattle Community College, 9600 College Way N, Seattle, 98103, USA".

ABSTRACT — Instructions given on "Guide to Submissions".

KEYWORDS — Not needed.

MANUSCRIPT TEXT — Instructions given on "Guide to Submissions".

LITERATURE CITED — You must have at least one reference to a print (not electronic) article or other publication. Use the format for citations and references the journal prefers.

TABLES — Include at least one table. Appropriate use of tables would be for an NMR spectrum peak assignment or a list of various biodiesel energy outputs. Each table must have a brief (one phrase or sentence) title that describes its contents. The title should follow the format "*Table 1*. Table Title". The title should be understandable without reference to the text. Put details in footnotes, not in the title

FIGURES — Include at least four figures:

- The reaction's chemical equation (with accurate fatty acid chains)
- The IR spectrum
- The NMR spectrum
- The GCMS spectrum (the gas chromatograph part? the mass spec part?)

Each figure must have a caption that includes the figure number and a brief description, preferably one or two sentences. The caption should follow the format "*Figure 1*. Figure caption." All figures must be mentioned in the text consecutively and numbered with Arabic numerals. The caption should be understandable without reference to the text. Whenever possible, place the key to symbols in the artwork, not in the caption. To insert the figure into the template, be sure it is already sized appropriately and paste before the figure caption.

