

Guide for writing the ester synthesis communication
CH 362& CH 362H
Department of Chemistry
Oregon State University
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You are asked to write a "communication" covering the synthesis portion of Experiment I, up to and including the assessment of your final product's purity via its infrared spectrum, refractive index, and gas chromatogram. (Bomb calorimetry work will be reported later.) Your communication is due at midnight on Monday, February 8. Submission MUST be made electronically, via Canvas.

A "communication" is a short report whose publication is expedited compared to other publication categories like articles and reviews. The time delay between submission and publication is usually only a few months for a communication, while for other categories it is often well over a year. Results are written up as a communication only if the author believes that they really deserve prompt publication (and anticipates that the journal editors will agree). You should certainly look at a few published communications before you begin writing. You may see examples on the ACS Journals page; the journal [*Organic Letters*](#) is exclusively in the Communication format (though somewhat longer than yours will be); the [*Journal of the American Chemical Society*](#) publishes both Full Papers and Communications, and it's useful to compare the two.

More concretely, communications are typically only one or two journal pages long (4 typescript pages, double spaced, not counting figures/table/references), and are limited to about 1000 words. It usually consists of an abstract, the body, and references/notes. Unlike longer publications (articles, reviews, etc.), all of these are short compared to the corresponding components of an article. The text is normally not sectioned, but will often contain one or more figures (including diagrams, plots, pictures, etc.), tables (which may be non-numerical and may even include small plots or diagrams), and/or schemes (used for organic syntheses, for example). Often these are challenging to design or construct, but if they are thoughtfully and carefully executed, they usually make it easier for the reader. Please consider the possibilities for such non-textual elements in your submission, and use them where you think it would enhance the "communication" between you and your reader. You are encouraged to take advantage of relevant software, but don't have to -- if a structure or diagram seems called for, one drawn by hand is preferable to none at all!

In some respects you probably can't model your writing after that in the journals. For example, communications often begin with some mention of the motivation for the research and a brief summary of past work in the area. Also, since your synthesis and your characterizations are less extensive than those reported in a typical communication, you don't have to attempt the highly abbreviated style of typical organic synthesis communications. Nevertheless, succinctness is strongly encouraged, so long as content and clarity aren't sacrificed. (Another possible deviation from standard form: If something sparked your interest and you'd like to go into it a little more than seems appropriate for a "proper" communication, please talk with one of us about the possibilities.)

The following tips are meant as examples of what you might include and is not meant to be limiting. You must decide for yourself what is most important to include in your brief communication paper on your discovery. Include a list of references at the end of the article and cite the reference number for your literature source as you need to within the text (see sample articles for format) .

1. Use scientific Tables, Figures and reaction Schemes as appropriate. Each of these should be numbered

and tables and figures should have a descriptive title or caption. Refer to the number of the table, figure, or scheme in the text as you discuss the significance of these data. For guidance, see the [ACS Style Guide](#), Chapters 15, 16 and 17.

2. Include concise account of synthetic procedures (**please don't retype your notebook records!**). "Procedures" include synthesis, the workup (extractions) with separatory funnel, and purification for the acid and for the ester. Note that in the body of the paper, you only comment on procedures that affect the chemistry; a standard Experimental section is placed in Supporting Material at the end, and does not count toward the 1000-word limit.
3. Report yields for each step and the overall for the two steps on a molar basis.
4. Using both the acid and the ester vacuum distillations data, for example, include the boiling point (bp), pressure, mass, with bp's corrected to 1 atm for each fraction and compare with known literature values for normal bp's. Cite reference number for literature source using standard formatting for a communication paper.
5. Include GC data for the best fraction of ester.
6. Give an IR peak table and list the major important peaks in the IR and a corresponding literature value for the particular functional group in the molecule for each peak in the table.
7. Compare and contrast the IR spectrum for the acid with that for the ester.
8. Compare the average of the six measured and temperature corrected RI \pm confidence interval for your ester at either 20 or 25 °C to a literature value at the same temperature and wavelength. (Please do not include an "orphaned" table of RI values.) Does your RI value (\pm confidence interval) fall in the range of the reference RI value \pm its confidence interval? If yes they agree, if not they don't agree. If they don't agree, what does that tell you about the identity of possible contaminants in your ester?
9. For Characterizations include some instrumental parameters, such as, for GC, the column stationary phase, for FTIR and for RI, the sampling method used, and make/model of instruments.
10. Include a numbered reference list at the end of your paper and in the text, cite the references by number when you state something in your paper that came from a reference and not your experiment. Again see the sample communication papers handed out in class for examples of how to use and cite references.

After submitting your communication, each of you will be asked to review those submitted by two classmates. For each one you will fill out a brief review form (with only about a paragraph of writing). At the same time, other classmates (different from those whom you are reviewing) will be looking at your manuscript. Everyone will get back two review forms. As usual for this kind of review process, reviewers will know the identities of those they review, but not vice versa. Of course you can also expect some further commentary from one or more Experimental Chem staff members. (Think of us as the journal editors, who get to pass final judgment on your manuscript.)