



### Editorial Objectives

Submissions to the *Journal of Chemical Education* should address *JCE*'s audience and its goals. The ACS Division of Chemical Education, Inc., publishes *JCE* as a means of communication among people who are interested in teaching chemistry. This includes teachers of chemistry from middle school through graduate school, as well as some scientists in industry and government.

W. T. Lippincott, a former editor, stated the *Journal's* aims well: "to provide chemistry teachers with information, ideas, and materials for improving and updating their background and their understanding of the science, and for helping them in their teaching and in their effectiveness in developing the talents of students. The central idea here is that this should be not only a 'living textbook of chemistry' as one of the early editors put it, but a perpetual and dependable learning source for chemists who teach."

*JCE* is a multimedia publisher. We publish chemistry education materials in print via the *Journal of Chemical Education*. We publish the same material and supplements to it via *JCE Online*, and interactive, dynamic, online resources via *Only@JCE Online*. We publish computer software and video via *JCE Software*. Submissions to *JCE* may be aimed at any one or any combination of our media divisions. Additional information is available at <http://jchemed.chem.wisc.edu/contributors/authors/>.

The *Journal* (print and online) publishes articles in these main areas:

- **Chemical Education Today** (news, commentary, reports, book and media reviews, letters to the editor)
- **Chemistry for Everyone** (applications, history, interdisciplinary activities, public understanding, *JCE* Classroom Activities)
- **In the Classroom** (teaching tips, methods, demonstrations, content, principles)
- **In the Laboratory** (experiments, microscale, safety)
- **Information/Textbooks/Media/Resources** (chemical information, technology and multimedia applications, information technology)
- **Research: Science and Education** (review papers that interpret a specific aspect of chemistry for teachers, science education research)

All submissions are peer reviewed; most are substantially revised and improved before acceptance and publication.

### Our Expectations

To be considered for publication, a manuscript must

- Have pedagogical content or relevance
- Be useful to a clearly defined audience of teachers
- Be accurate and original
- Include a complete list of literature cited

We expect that your manuscript has not been published or submitted for publication elsewhere and that you have done a thorough literature search to ensure that it does not duplicate previously published work, especially from *JCE*. (Use our online *JCE* Index at <http://jchemed.chem.wisc.edu/Journal/Search/> to find *JCE* references. For laboratory manu-

scripts, also consult the Project Chemlab database at <http://jchemed.chem.wisc.edu/JCEWWW/Features/Chemlab/>.) The text should be in clear, concise, standard English and should begin with an overview of how the work presented is relevant to classroom, laboratory, or curriculum.

Whenever possible, incorporate materials by citing relevant publications. Do not repeat what has been published. Make certain that tables and illustrations convey information effectively, and that graphs and figures are appropriately drawn. You can supply supplemental material that we can make available in *JCE Online* for downloading.

### How To Submit

**Letters to the Editor.** Send to the Editorial Office or email to [jceletters@chem.wisc.edu](mailto:jceletters@chem.wisc.edu). Your letter should be brief (400 words or less) and to the point. It may be edited for style, consistency, clarity, or length. Include your complete address, daytime phone number, and signature.

**News & Announcements.** Send to Elizabeth A. Moore at the Editorial Office or email to [betmoore@chem.wisc.edu](mailto:betmoore@chem.wisc.edu). Announcements should be concise, to the point, and appropriate for the *Journal's* audience. They may be edited for clarity, timeliness, appropriateness, or length. Announcements must be received at least two months before you want them to appear.

**All other submissions.** Send print copies of all other submissions to the *Journal's* Editorial Office. This includes those intended for feature columns and the Secondary School Chemistry section. Do not attach your submission to an email message. Submissions that do not conform to *JCE* guidelines will be returned for revision. There are additional guidelines for laboratory experiments (see pp 1543–1544) and for *JCE* Classroom Activities (see <http://jchemed.chem.wisc.edu/Journal/Authors/activity/index.html>).

### What Happens Next

When we have received your manuscript and the accompanying materials, you will receive an acknowledgment letter and a Copyright Assignment form. Once your signed Copyright Assignment form has been received, your manuscript will be sent to reviewers. Except in unusual circumstances, we will not communicate with you again until all of the reviewers' comments are in (usually this takes 1–2 months).

After acceptance, we will need a final version of the manuscript and all supplemental material in the proper electronic format. Please carefully follow the Instructions for Final Manuscript Preparation that will be sent to you and are also available on *JCE Online*. Before publication the corresponding author will receive proofs and an order form for reprints (available for a small charge). Papers are scheduled for publication after we receive corrected proofs.

If you have questions about submission procedures, please consult *JCE Online* (<http://jchemed.chem.wisc.edu/Contributors/Authors/>) or direct your questions to the *JCE* staff by email ([jce@chem.wisc.edu](mailto:jce@chem.wisc.edu)), telephone (608/262-7146), fax (608/262-7145), or U.S. mail to the *JCE* Editorial Office: 209 North Brooks Street, Madison, WI 53715-1116.

## A complete submission includes

- 1. A cover letter** from the corresponding author that states that the manuscript is being submitted exclusively to *JCE* and indicates why it is appropriate for the *Journal*. Authors are invited to suggest reviewers (please include complete, current postal addresses) and to suggest graphics that could be used for cover illustrations.
  - 2. A cover sheet** that includes the title of the manuscript, the area (In the Classroom, etc.) in which the manuscript best fits, the number of words in the manuscript, the name of the corresponding author, and the names of all other authors. For each author give complete postal and email addresses and telephone and fax numbers. Indicate which method of communication the corresponding author prefers. If the manuscript is suitable for any of the *Journal's* feature columns, please indicate which one(s).
  - 3. An original plus three copies (four total) of the manuscript.** The manuscript must be printed, double-spaced (no more than one line per vertical centimeter), in a font no smaller than 10 point. Number each page at the bottom right corner. Use 1-in. (2.5-cm) margins on top and sides of the page, and adjust the bottom margin so that all text and page numbers are no more than 10.5 in. (26.5 cm) from the top of the page. Fasten the pages in the upper left corner (paper clip the original and staple the copies). Do not put them in binders, folders, report covers, or plastic page protectors. The manuscript should include, in this order:
    - ✓ **Abstract.** Page 1 should contain the title of the manuscript, the authors' names and institutional addresses, the abstract, and the keywords, in that order. The abstract should be no more than 200 words long and should summarize the important points made in the manuscript. (Abstracts appear in *JCE Online* and *JCE CD*, but not in print.)
    - ✓ **Keywords.** Page 1 should also contain at least three keywords selected from the *Journal's* list (see <http://jchemed.chem.wisc.edu/Journal/Authors/keywords.html>); Keywords help categorize your manuscript and aid in the preparation of the index.
    - ✓ **Manuscript text.** Page 2 should begin with the title and the authors' names and institutional addresses, followed by the manuscript text. The text should follow ACS style guidelines (see *The ACS Style Guide*, 2nd ed.; Dodd, J. S., Ed.; American Chemical Society: Washington, DC, 1997). Place tables and figures with their captions in the text where they will be most useful to the reader. Also print or copy all tables and figures, one per page, and collect them, with a separate list of captions, at the end of the manuscript text.
  - 4. An original plus three copies (four total) of any supplemental material.** Many manuscripts include supplemental material for publication via *JCE Online*, the *JCE* Web site. (The Lab Documentation section of a laboratory experiment is supplemental material.) When possible, prepare supplemental material in the same format as the manuscript text. Label it clearly as supplemental material for online publication.
    - ✓ **Literature Cited.** Place the bibliography at the end of the manuscript text. If you cite no references, include the results of a literature search that cites your own and others' work that has a bearing on the manuscript you are submitting and explain why no citations are needed. Include in this section *only* material that has been published in the literature or on the Internet. Additional comments may be placed in numbered endnotes, indicated by superscripts in the text.
    - ✓ **Tables.** Collect tables (if any) on separate sheets as well as including them in the manuscript at the point where they are referred to. Column headings for physical quantities should consist of quantity/units. (For a concentration of 2.47  $\mu\text{mol/L}$ , the heading would be concentration/ $\mu\text{mol L}^{-1}$  or concentration/ $10^{-6} \text{ mol L}^{-1}$ , and the number entered in the table would be 2.47.)
    - ✓ **Figures.** Collect figures (if any) at the end of the manuscript, each on a separate page. Four copies of each color figure must be submitted in color. Four copies (not photocopies) of each photograph must be submitted. Axes of graphs should be labeled with quantity/units in the same way that table headings are done.
- Digital versions on disk are required only after a manuscript has been accepted. However, consulting our **Instructions for Final Manuscript Preparation** while you are preparing your manuscript may save you time later. Find these at <http://jchemed.chem.wisc.edu/Journal/Authors/disk.html>.



Send your manuscript to the Editorial Office:

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## Supplemental Guidelines, Laboratory Experiment Manuscripts

These guidelines supplement the Guide to Submissions on page 1541–1542 and at <http://jchemed.chem.wisc.edu/Journal/Authors/Guidelines.html>; they are also available on request from the *JCE* editorial office. Manuscripts that describe laboratory experiments should first follow the Guide to Submissions and then apply these Supplemental Guidelines.

### Rationale

*JCE* receives many submissions that describe laboratory experiments. The broad range of experiments readers can find each month is one of our most important features. These supplemental guidelines have been designed to make published laboratory experiments as useful as possible to readers. They are based on four fundamental ideas:

- Peer review of a lab experiment manuscript should be based to a large degree on the written and technology-based materials used by students in the laboratory, not just on a description of those materials.
- *JCE* will print the information a reader needs to decide whether to try to use the experiment; this includes information about possible safety hazards.
- Readers who decide to use a lab should be able to adapt it to their circumstances quickly and easily.
- Detailed information, including student materials, should be available in a format that is modifiable and easily adapted for use by faculty, students, and support staff who will use the experiment.

### What To Send

To support these goals we require that a laboratory experiment manuscript contain a Lab Summary and Lab Documentation (described in detail below) as well as an Abstract and Keywords. If, after peer review, a lab experiment manuscript is accepted for publication, only the Lab Summary will be printed in *JCE*. The Abstract, the Lab Summary, and all Lab Documentation will be published via *JCE Online*. Lab Documentation is placed on the Web as PDF files that can be displayed and printed by Acrobat Reader software, and as files that can be edited by those who adopt a lab. Those without Web access can request printed copies of materials related to a particular experiment, which will be provided at cost.

### Literature Search

Those who plan to submit a lab experiment manuscript should first search the Annotated List of Laboratory Experiments, a keyworded database compiled by Carolyn Allen, Stanley Bunce, James Zubrick, and members of the Division of Chemical Education Committee on Project ChemLab. It is available at <http://jchemed.chem.wisc.edu/JCEWWW/Features/Chemlab/index.html>. Next, search titles in the *JCE* Index online at <http://jchemed.chem.wisc.edu/Journal/Search/index.html> to make certain that a similar experiment has not already been published in the *Journal*. Finally, search other journals and commercial lab manuals. Related experiments should be cited in the Literature Cited section of the manuscript; if a previously published lab is very similar, explain why the new manuscript provides information not already available to readers.

### Lab Summary

The Lab Summary must be accompanied by an Abstract, Keywords, and Lab Documentation. It will include literature cited and may include tables and figures. (See the *JCE* Guide to Submissions for more details.) The Lab Summary should be no longer than two *Journal* pages (about 1500 words).

The Lab Summary should enable a reader to decide whether the experiment described would be suitable for a local course or program. It should briefly give a rationale for adopting the experiment and an indication of the course or level where the experiment would fit into a curriculum. The Lab Summary should briefly describe the procedures, techniques, facts, and concepts students will learn. It should explain how and why the experiment helps students learn and give typical results obtained by students who have done the experiment. It should list equipment, chemicals, and instruments that are not expected to be available in a typical chemistry department. Manufacturers and suppliers of equipment and chemicals should be included for reference. Consideration should be given to significant figures when reporting results or quantities used in the experiment section.

The Lab Summary must include a “Hazards” section that describes any hazards related to procedures or substances, or states that there are no significant hazards.

### Lab Documentation

Lab Documentation should include all material not available in the Lab Summary that would be useful to a reader who intended to carry out the experiment with students at the reader's institution. This section must include: written directions used by students; instructor notes to help the adopter of the experiment adapt it to local conditions; CAS Registry Numbers for all chemicals; complete information regarding potential hazards to students and instructors; and appropriate safety warnings in student directions. (If any of these are unnecessary for a particular experiment, the Lab Documentation should indicate that they are absent and explain why they are not needed.) If the experiment cannot be carried out without author-produced software, spreadsheet templates, or other technology-based materials, copies of these materials should be supplied in computer-readable format.

Examples of Lab Experiments already published in this format are available at *JCE Online*; go to <http://jchemed.chem.wisc.edu/Journal/Authors/laboratory/examples.html>.

### Summary

These supplemental guidelines for laboratory experiments are intended to make *JCE* more useful and attractive to readers by providing in print a clear summary of the experiment and providing online more detailed information in a form that can be used and edited by readers. The checklist on page 1544 suggests how a submission should be structured and is also available at <http://jchemed.chem.wisc.edu/Journal/Authors/laboratory/>.

## Checklist, Laboratory Experiment Submissions

Lab experiment submissions should follow the *JCE Guide to Submissions* (pages 1541–1542) first and these guidelines second. There should be three parts:

**Abstract/Keywords, Lab Summary, Lab Documentation**  
Each part should begin on a separate sheet of paper and should be labeled Abstract, Lab Summary, or Lab Documentation.

For a new manuscript or a revised manuscript that has *not* been accepted for publication, submit **four** copies of each part. Submit four copies of any software on four disks. Do

not send the *manuscript* on disk until the editor specifically requests it.

If you have been notified that your manuscript will be published, either “as is” or with minor revision, and we have requested a version on disk, then send **three printed copies** along with the disk containing the electronic version. **The printed copies should match the electronic version exactly.** Two copies will be used by Project Chemlab annotators.

Please check that each item listed below has been satisfied by your submission.

- \_\_\_ **Follow the *JCE Guide to Submissions*** regarding manuscript format (spacing, page margins and numbering, style for citing references, etc.) for the Abstract/Keywords, Lab Summary, and all Lab Documentation except materials handed out to students, which can be provided in the same format that the students receive.
- \_\_\_ **Send four copies** of Abstract/Keywords, Lab Summary, Lab Documentation, and necessary software.
- \_\_\_ **Include Abstract/Keywords** as for any *Journal* manuscript (the abstract should be no more than 200 words). Include “Laboratory Instruction” as one of the keywords.
- \_\_\_ **Include Lab Summary** for publication in print (approximately 1500 words). The lab summary should:
  - \_\_\_ Explain why someone would want to adopt the experiment.
  - \_\_\_ Indicate the course or level where the experiment fits into the curriculum and how long it would take to do.
  - \_\_\_ State clearly and briefly the procedures, techniques, facts, and concepts students will learn; for synthetic experiments include the reactions and synthetic methods involved but not detailed reaction conditions.
  - \_\_\_ Explain how and why the experiment helps the students learn.
  - \_\_\_ Include results (tables, graphs, percent yields, etc.) typical of those obtained by students who have done the experiment (use appropriate significant figures).
  - \_\_\_ Summarize (if possible) the results of evaluation studies that indicate whether the experiment achieved its goals.
  - \_\_\_ List equipment, chemicals, and instruments used in the experiment that are not expected to be available in a typical chemistry department; give manufacturer’s or supplier’s name.
  - \_\_\_ Include a section headed “Hazards” that describes any hazards related to procedures or substances, or that states that there are no significant hazards.
  - \_\_\_ Cite references to related experiments that have appeared in *JCE*, other journals, or commercial lab manuals, and explain how this experiment differs from them.
  - \_\_\_ Summarize other information that would help a person considering adopting the experiment to decide whether or not to expend the effort needed to adapt the experiment for use at his or her institution.
- \_\_\_ **Include Lab Documentation** for *JCE Online* in computer-readable form. Lab documentation should include
  - \_\_\_ Written material used by students (with appropriate warnings of hazards), such as,
    - \_\_\_ Directions and experimental procedures
    - \_\_\_ Report forms, or examples of student assessment tasks
    - \_\_\_ Handouts containing supplemental or background information, or pre- or post-lab questions
  - \_\_\_ Instructor notes (with appropriate warnings of hazards), such as,
    - \_\_\_ Background information
    - \_\_\_ Lab preparation and equipment needs
    - \_\_\_ Directions for preparing solutions, instruments, and other apparatus
    - \_\_\_ Tips for success and troubleshooting notes
    - \_\_\_ Answers to any questions asked of students
  - \_\_\_ CAS registry numbers for all chemicals
  - \_\_\_ Complete information about *safety and hazards* of the experiment
  - \_\_\_ Author-produced, technology-based materials needed for students to carry out the experiment, in computer-readable form, for example
    - \_\_\_ Computer software, spreadsheet templates
    - \_\_\_ Mathcad, Mathematica, MatLab, or Maple documents
    - \_\_\_ Information needed to carry out molecular modeling or other exercises
  - \_\_\_ Amplification of any items in the Lab Summary where additional information would help a user
  - \_\_\_ Any references or citations that were not included in the Lab Summary but are needed by students or those who are implementing the experiment
  - \_\_\_ Any other information needed to implement the experiment