

## TITLE

- Brief (less than 15 words)
- Grammatically correct
- Accurately reflect the contents
- Be specific (avoid generalizations like “synthesis of a transition metal complex”)
- Often written last

Try to avoid the following

- “A study of ...”
- “Research on ...”
- “A report of ...”
- “Use of ...”
- “Regarding ...”
- New, Novel, Rapid ... (and other non-quantitative terms)
- Jargon, symbols, abbreviations, formulas with sub and superscripts

A title serves two main purposes

1. Attracts a potential audience
2. Aids in indexing and retrieval in electronic form
  - Especially important if the journal is obscure

## BYLINE AND AFFILIATION

Include everyone who made significant contributions to the research even if they did not assist in writing the paper

Be consistent from paper to paper with names. e.g.

- J.R. Smith
- John Robert Smith
- J. Robert Smith
- John R. Smith

Do not include titles, degrees or professional affiliations

The affiliation is the institution(s) where the work was conducted. If there are multiple authors use and asterisk to indicate the primary author (author to whom correspondence should be addressed).

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Additional information may also be required by various publishers (phone number, e-mail address, fax number)

## **ABSTRACT**

Typically between 80 and 200 words

For a research paper present the problem, method or experimental basis, major findings and principal conclusion

Do not comment on or evaluate the conclusions

Like the title, the abstract is often written last and serves a similar function, i.e.

1. Attracts a potential audience
2. Aids in indexing and retrieval in electronic form
  - Especially important if the journal is obscure

## **INTRODUCTION**

The title “Introduction” is often omitted since it is superfluous, check the journal publication style.

Provides a clear and concise statement of the problem and why it should be studied (in the first few sentences).

Provides a brief summary of previous work and closely related publications. State why/how the present work is different or extends the previous work.

## EXPERIMENTAL METHODS

First named section, may also be called...

- Materials and Methods
- Theoretical Basis
- Experimental Details
- Etc... check with the publisher

Give enough information that other experienced workers can repeat the experiment. When using common methods, cite the appropriate publication. Standard methods like titrations, NMR, UV-Vis do not need extensive reference. Include safety information if a procedure/material is particularly hazardous.

List materials used that are non-standard (include purity, manufacturer and any pre-purification). Do not list common materials like solvents. Include instrumental details if they differ significantly from commonly used methods. e.g. if an NMR is collected with an unusual or new pulse sequence then details should be provided.

Avoid trademarks and unfamiliar abbreviations

Compounds with complex names may be assigned an identifier

dipyridyl (bpy)

ruthenium(II)tris-(1,10-phenanthroline) dichloride (**Ia**)

ruthenium(II)tris-(2,9-diphenyl-1,10-phenanthroline) dichloride (**Ib**)

## RESULTS

Summarize the data that was collected and any statistical treatment (error analysis, etc...). Include enough details to justify the conclusions made. Use figures, tables and equations when necessary for clarity and brevity. Do not comment on the meaning of the data.

Present the data and nothing else.

## DISCUSSION

Interpret and compare the results to previous work.

Suggest further research or applications of the work.

Relate the results to the stated problem

Point out limitations of the data and alternate interpretations

May be combined with the results section as a “**Results and Discussion**” section if appropriate. In lengthy papers with multiple parts this is often easier to read and write.

## CONCLUSION

Does the data address the problem stated in the introduction?

Discuss why or why not.

Do not repeat information in the discussion section or include irrelevant information. Conclusions must be based on the evidence presented.

## **SUMMARY**

Usually unnecessary. Included only if the paper is exceptionally long (e.g. in a review article). Highlight the main points only. Do not repeat information from previous sections.

## **ACKNOWLEDGMENTS**

Optional. Acknowledge people or organizations that provided funding as simply as possible. Thanks to individuals that helped with technical details or provided significant assistance to the project other than co-authors. Check with publishers for what is appropriate.

e.g. Funding for this work was provided by funds from the National Science Foundation (project number NSF-6547166).

## **REFERENCES**

May be placed as footnotes throughout the manuscript or as a separate section at the end. Check with the publisher for what is appropriate. Follow the accepted style for citations for each journal.

Use endnotes for 116 lab reports

## MORE ON REFERENCES...

### Typical ACS Style for Citations

Use superscript Arabic numerals to identify the reference.  
Footnotes in publication (often endnotes when submitted)  
Use endnotes for class.

Author names may be used in a sentence e.g.

The synthesis described by Fraser<sup>6</sup> takes advantage of ....  
Jensen<sup>3</sup> reported oscillations of the reaction of ...

Include both authors if there are two or use et al. if more than two  
e.g.

Allison and Perez<sup>12</sup> concluded that...  
Johansen et al.<sup>24</sup> first discovered the reaction of....

Multiple citations are given in order, separated by commas and/or  
dashes. e.g.

Pauling and co-workers<sup>10,11</sup> found....

Rate constants have been reported to vary over several orders of  
magnitude depending on experimental conditions.<sup>16-20,32</sup>

## REFERENCE STYLE

### Periodicals

Author 1; Author 2; Author 3; *Journal Abbreviation*, **Year**,  
*Volume*, Inclusive Pagination.

Note: Author field should be last name first separated by a comma.

Cotton, F.A.; Smith, J.R. *J. Am. Chem. Soc.*, **1998**, *45*, 1198-1205.

Use CASSI (Chemical Abstract Service Source Index)  
abbreviations for journals

Sometimes only initial page numbers are given

### Books without editors

Author 1; Author 2; Author 3. Chapter Title. *Book Title*, Edition  
Number; Series Information (if any); Publisher: Place of  
Publication, Year; Volume Number, pagination

Shore, B.W. Electronic Spectroscopy. *Complete Encyclopedia of  
Spectroscopic Techniques*, 3<sup>rd</sup> Ed., Modern Instrumental Methods  
Series; American Chemical Society: Washington, D.C., 2003; pp  
215-300.

### Books with editors

Author 1; Author 2; Author 3. Chapter Title. *Book Title*, Edition  
Number; Editor 1, Editor 2, Editor 3, Eds.; Series Information (if  
any); Publisher: Place of Publication, Year; Volume Number,  
pagination

## LESS COMMON REFERENCE STYLES

### **Nonscientific Magazines and Newspapers**

Author 1; Author 2; Author 3; Title of Article. *Title of Periodical*, Complete Date, pagination

### **Theses**

Author. Title of Thesis. Level of Thesis, Degree-granting University, Location of University, Date of Completion.

Johansen, R.R. Kinetic Modeling of Chlorophyll Degradation. Ph.D. Thesis, University of California at Santa Barbara, Santa Barbara, CA, August 2003

### **Patents**

Patent Owner 1; Patent Owner 2; Title of Patent. Patent Number, Date.

### **Unpublished Materials**

Author 1; Author 2; Author 3 Title of unpublished work, Journal Abbreviation, phrase stating the stage of publication

Cotton, F.A.; Smith, J.R. Photochemical Activation of Benzophenone. *J. Am. Chem. Soc.*, Submitted for publication

Smith, J.R. University of Texas, Austin, TX. Personal communication, 1999

### **NOTES**

See Chapter 6: References, *The ACS Style Guide: A Manual for Authors*, Dodd, J.S. Ed.; American Chemical Society: Washington, D.C., 1997; 173-229.

### **Avoid citing internet resources**