# I-SURF RESEARCH PAPER GUIDELINES

Your research paper—along with your presentation at the Symposium—is the culmination of your I-SURF experience. It is your chance to demonstrate the results of your work, what you have learned, and how you have contributed to your research area's body of knowledge.

Originality, academic and practical relevance, thoroughness, accuracy, consistency, credibility, and proper referencing are important criteria for success. In preparing your paper, aim for a logical structure and a style that promotes readability. Also take care to use standard academic English.

*Note: These guidelines are somewhat different from those you would use in preparing a paper for most scientific publications.*

## Paper Structure

Your paper must include a Title Page, an Abstract, Key Terms, Introduction, Acknowledgements, and Works Cited sections, in addition to the manuscript body. The following sections describe these parts of the paper.

### Title Page

The title page must include the following:

- Student name and home institution
- Paper title
- Professor(s) or mentor(s) who guided the research, and his/her/their home department(s)

### Abstract

The abstract is a single paragraph of fewer than 250 words that summarizes the entire paper. Readers use the abstract to decide whether they want to read the rest of the paper. It must contain enough information for them to gain a preliminary understanding of the project and to decide whether it appeals to their interests or not.

Discuss the following issues, devoting only one or two sentences to each:

- The problem you investigated
- The purpose of the study
- The methods
- The major results
- The interpretations
- The implications

### Key Terms

This is a list of up to seven alphabetized words or short phrases that are central and specific to your research. All of the key terms must be explained in your paper.

### Introduction

The Introduction provides readers with the information they need to understand the rest of the paper. Make sure you:

- Establish the basis and background for the project.
- Define terms that may not be familiar to readers outside the field.
- Present the objective(s) and question(s) the research addresses.
- Summarize previous research and the current status of the topic.
- Discuss the relevance and significance of the research.
- Describe the general methods and rationale used to explore the hypothesis.

### Manuscript Body

Organize the body of the paper carefully. Subdivide the body into sections to emphasize both content and clarity. Use headings and subheadings to make the organization clear. Consider the following:

- Use the accepted terminology of the field to describe any materials, subjects, or experimental procedures used to gather and analyze data.
- Include detailed methods, so readers would be able to replicate the investigation.
- State the results clearly and succinctly. Thoroughly discuss, interpret and analyze the implications of the findings.
- Describe any problems you encountered and explain any unexpected findings. Include ways to improve or expand your research.
- Provide a conclusion that restates the question(s), results, and broader significance of the research.
- Plainly and succinctly discuss the impact of the results, both globally and specifically, to enlighten readers, regardless of their previous background in the field of study.

### Methods and Materials

The purpose of this section is to make it possible for someone versed in your area to repeat your experiment and reproduce your results. Describe, in excruciating detail, exactly what you did. Include the following:

- Subjects used and their pre-experiment handling and care
- Sample preparation technique
- Origins of samples and materials
- Protocol for collecting data—how the procedures were performed
- Statistical analysis techniques used
- Information on computer programs used or written
- Descriptions of equipment setup and function

### Results

Present the key results of the project without interpreting their meaning. Do not present raw data; use text, tables and figures to summarize. If feasible, follow the organization of the Methods and Materials section to provide consistency for the readers.

### Discussion

Use this section to interpret the results of the project. Restate the major issues you discussed in the introduction and interpret them in light of the results. It is important to answer these questions:

> Did the results provide answers to the testable hypotheses?
>
> If so, what does this mean for those hypotheses?
>
> If not, do the results suggest an alternate hypothesis? What is it? Why do the results suggest it? What further results might solidify the hypothesis? Have others proposed it before?
>
> Do these results agree with what others have shown? If so, do other authors suggest an alternate explanation to explain the results? If not, how does this experiment differ from others? Is there a design flaw in this experiment?
>
> How do these results fit in with results from other studies? Do results from related studies affect the way you have interpreted these results?

Beyond simply interpreting the results, consider the following (in any order):

> What factors or sources of error might have influenced your results?
>
> What anomalous data appeared and how can you explain them? Are they explained by a theory, either yours or somebody else's?
>
> Was this experiment the most effective way to test your hypothesis? How could the experiment be improved to gain further insight?
>
> How have the results and conclusions of this study influenced our knowledge or understanding of the problem?
>
> What would be the next step in this study?
>
> What experiments could be run—or data found—to further support your hypothesis? What experiments could be run to disprove your hypothesis?

## Acknowledgements

Thank the people/organizations that have supported the research and acknowledge funding sources where applicable.

## Works Cited

Papers must contain full in-text referencing (not endnotes) with the complete references listed at the end of the paper. All resources—people, journals, pamphlets, etc.—must be referenced.

References must be in MLA format. See the "Citing References" section on page 4 for an overview of the reference format. For further information, MLA handbooks are available in the UROP office.

## Layout and Style

This section describes the required format and layout for submissions.

## Document File

| Page Count | Papers are limited to a maximum of 20 pages. |
|---|---|
| File Format | Submitted documents must be in one of two file formats: <br><br> PC-formatted Word (.doc) file <br><br> Adobe Acrobat (.pdf) file |
| Page Margins | Set margins to one inch (1") on all sides. |
| Font | Use 12-point Times New Roman throughout the paper. |
| Line Spacing | Set Line spacing to Double. |
| Page Numbers | Number all pages. Center page numbers on the bottom of each page. |
| Figures | Number and title all figures, including graphs, drawings and photos. Place figure captions below the figures. |
| Tables | Number and title all tables. Place table captions above the tables. |
| Equations | Number all equations. Place equation numbers in parentheses to the right of the equations. |
| Footnotes | In general, avoid the use of footnotes. If, however, there is critical supporting text that does not fit in the main text flow, a few footnotes may be appropriate. <br><br> Never use footnotes to cite references. |

## Graphics

Use graphics, including figures, tables, graphs, etc., to support your key findings. Graphics should be able to be understood on their own and must:

> Be of high resolution, at least 350 DPI (dots per inch). Note that many screenshots and pictures from the Web are 72 DPI, which is not suitable for print.
>
> Have neat, legible labels.
>
> Be simple. Avoid forcing too much information into a single graphic.
>
> Be clearly formatted.
>
> Indicate error. Include standard deviation information in tables and use error bars in graphs.
>
> Have detailed captions.

## Style Guidelines

| | |
|---|---|
| **Commas in Lists** | If a list comprises three single words (apples, oranges and bananas), there is no comma before the "and." Use a comma before "and" for lists with four or more single words (apples, oranges, bananas, and kumquats) or if one or more of the items listed has more than one word (apples, oranges, passion fruit, and bananas). |
| **Semicolons** | Use to separate two closely related, independent clauses; independent clauses can stand on their own and have both a subject and a verb. Semicolons can also be used in lists of multiple phrases where commas are already used. |
| **Space after Periods** | Use a single space after periods. Do not use double spaces. |
| **Space after Colons** | Use a single space after colons. Do not use double spaces. |
| **Em dashes** | Do not insert a space before or after an em dash (double hyphen). |
| **Slashes** | Do not insert a space before or after a slash. |
| **Italics** | Italicize foreign words used in their original context, such as in vitro and in vivo. Italicize et al. in the text, but not as part of in-text references. |
| **Acronyms** | When defining acronyms, only capitalize proper nouns. |
| **Unit Abbreviations** | Abbreviate units without periods: Seconds: sec  Grams: g  Minutes: min  Kilometers: km  Hours: hr |
| **Degree Symbols** | Angles: #° (no space before the degree symbol) Temperature: # °F or # °C (space before the degree symbol) In Word, click Insert, then click Symbol to open the Symbol dialog. With the font set to Times New Roman, select the degree symbol from the table. Another way to insert a degree symbol is to hold down the Alt key and, on the numeric keypad, press 0 1 8 6, then release the Alt key. |

## Tips on Good Writing

Producing a paper of excellent quality is not as daunting as it may seem; it just takes a little planning:

Write your paper with an interdisciplinary audience in mind. Your audience includes students, faculty, and members of the university community who are not in your field. Consider their level of knowledge about your specialization as you write.

Keep writing throughout the research process. By the time you come to the conclusion of your project, the amount of information you have collected can seem overwhelming. Try to sit down each week and write a few paragraphs about your topic. These preliminary drafts will be invaluable when you start to write your paper.

Check sentence order. Make sure that all the sentences in a paragraph relate to each other. You may want to prepare an outline after you have written the paper to double-check that each paragraph is in the most appropriate place. If you sense that the paragraphs are out of order, try cutting the paper apart by paragraph and physically rearranging the segments. Then reorder them on your computer.

Evaluate the use of quotations. Avoid the excessive use of direct quotations; paraphrase whenever possible.

Avoid writing the paper in the first person. (I did this; I found that; I will describe…) unless you are talking about your specific interactions with people.

Get feedback on a draft. Ask students in your field and from other disciplines to read your paper and make suggestions. Have your faculty mentor also read and make suggestions.

Read to your plants. This may sound silly, but it works. A few days after you finish your paper, read it out loud. Reading aloud will force you to slow down, and you will find yourself catching spelling and grammar mistakes, as well as awkward phrasings or unnecessary sentences.

## Submission Checklist

❑  My paper answers the question "What is the significance of my research?".

❑  I have checked that my abstract and conclusions accurately reflect the content of my paper.

❑  I have explained any technical or scientific terms unique to the topic of my research.

❑  People from other disciplines have read and critiqued my paper.

❑  I have spell-checked and read my paper thoroughly.

❑  I have reviewed the Paper Submission Guidelines.

❑  If applicable, my paper includes in-text citations, graphs, and data, and is formatted according to the Paper Submission Guidelines.

❑  My mentor read my paper, and I asked my mentor to suggest improvements.

# Citing References

All references should be in MLA format. This section gives an overview and examples of the reference format. For more details or other examples, please consult the MLA Handbook (available in the UROP Office) or search online for other MLA guides.

## In-Text Referencing

In-text referencing depends on whether the reference deals with a specific section or the conclusions of an entire work.

Specific section: Cite the name of the author(s) and page number(s) only (James 115). There is no comma before the page number.

Entire work: Cite the name of the author(s) and year of publication (James, 1984). There is a comma before the year.

Format multiple-author references according to the number of authors:

Two authors: (Collins and Fremont, 1977)

Three authors: (Collins et al., 1988)

For parenthetical in-text references, "et al." is not italicized. Italicize "et al." everywhere else.

## Works Cited Section

Here are some examples of common entries for a Works Cited section. If you cite two or more entries by the same author(s), provide the name(s) only in the first reference and use three hyphens and a period (---.) for the others. Also make sure to provide the unabbreviated article and journal titles.

### Books

Author(s) of Book. Book Title. City Published: Name of Publisher, Year Published.

Eggins, Suzy. Analyzing Conversion. London: Cassell, 1997.

Eggins, Suzy, and Diane Slade. Analyzing Conversion. London: Cassell, 1997.

Eggins, Suzy, Diane Slade, and Ann Sheldon. Analyzing Conversion. London: Cassell, 1997.

### Books Published in a Different Edition

Author(s) of Book. Book Title. Ed. Name of Editor. Edition Number. City Published: Name of Publisher, Year Published.

Chaucer, Geoffrey. The Works of Geoffrey Chaucer. Ed. F. W. Robinson. 2nd ed. Boston: Houghton, 1957.

### Scholarly Journal Articles Paginated by Issue

Author(s) of Journal. "Article Title." Journal Name Volume.Issue Number (Year Published): Page Numbers.

Hallin, Daniel C. "Sound Bite News: Television Coverage of Elections, 1968-1988." Journal of Communication 42.2 (1992): 5-24.

### Scholarly Journal Articles with Continuous Pagination

Author(s) of Journal. "Article Title." Journal Name Volume (Year Published): Page Numbers.

Craner, Paul. "New Tool for Art: The Computer and Music." Computers and Humanities 25 (1991): 14-19.

### Articles in a Collection or Anthology

Author(s) of Article. "Article Title." Title of Collection or Anthology. Ed. Name of Editor. City Published: Name of Publisher, Year Published. Page Numbers.

More, Hannah. "The Black Slave Trade." British Women Poets. Ed. Paula Feldman. Baltimore: Johns Hopkins University Press, 1997. 472-482.

### Articles in a Newspaper

Author(s) of Article. "Article Title." Name of Newspaper. Date, Edition: Page Numbers.

Lohr, Steve. "Now Playing: Babes in Cyberspace." New York Times. 3 Apr. 1998, late ed.: C1.

Articles in a Magazine (weekly/every two weeks)

Author(s) of Article. "Article Title." Name of Magazine. Day Month Year: Page Numbers.

Mehta, Pratap Bhanu. "Exploding Myths." New Republic 6 June 1998: 17-19.

Note: For a magazine published monthly or every two months, provide the month and year only.

### Interviews that You Conducted

Name(s) of Person(s) Interviewed. Interview Type. Date Conducted.

Pei, I.M. Personal interview. 22 July 1993.

Bed, Alvin F. Telephone interview. 10 Dec. 1990.

### Electronic Publications

Because this area is so diverse, here are a few guidelines to follow. Be as complete and specific as you can.

Title of database or project (underlined).

Name of editor(s) of the database or project (if given).

Electronic publication information, including version number, date of electronic publication (latest update), and name of the organization.

Date of access and Website address.

CNN Interactive. Ed. J. Doe. Vers. 98.2. 8 May 1998. Cable News Network. 8 May 1998 <http://www.cnn.com/>.

Note: To cite a selection within a database or project, begin with the author's name and then, in quotes, the title of the work. Then proceed as described above. Be sure to give the specific Website address for the selection.