

**ACS Overview**

**Commented [WC1]:** Not every professor will require a title page. Make sure to check if it is required or not. Some will want some sort of heading on your first page of writing instead.

Student First Name Last Name

Lab Partner Name (if required)

Course ID

Professor Name

Due Date

## Page Formatting

**Line Spacing** Your entire paper will be double-spaced. Make sure to take out the extra space before and after paragraphs by using the Line Spacing Options on the toolbar.

**Block Quotes** Any quotation over 50 words must be started on a new line, indented on both sides 1 inch from the margin, and without quotation marks. To do this, once you have typed in the text, highlight the text, right click, and select “Paragraph.” Under “Indentation” make it so “Left” is set to 1”. Then change the “Right” indent to 1”.

**Figures** Figures include graphs of data, photographs, sketches, flow charts, etc. When using a figure, you must refer to it in your writing before the figure is placed. Figures are numerically labelled in the order they appear in the paper. The label and description go directly beneath the figure. If it is not an original image and needs to be cited, the superscript citation goes at the very end of the description under the figure. See below for an example.

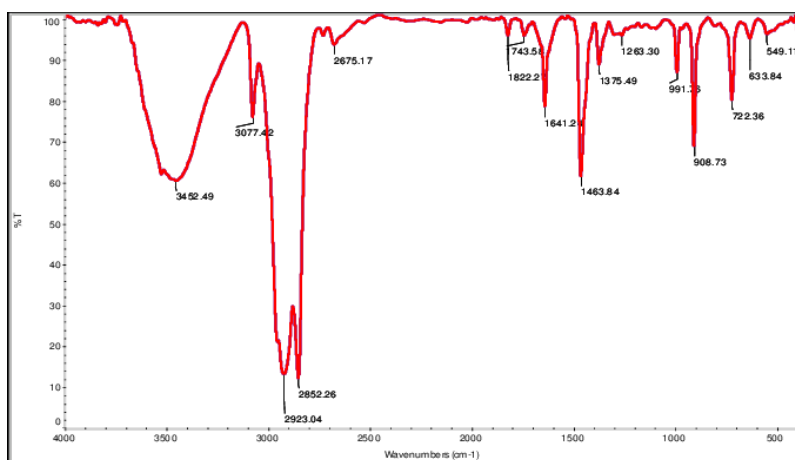


**Figure 1.** The different measuring tools used in the current experiment, including an Erlenmeyer flask, beaker, and conical flask.<sup>1</sup>

**Tables** Tables are used when there are many precise numbers presented or when there are meaningful interrelationships. An example would be IR Spectra. Tables are labelled numerically as they appear in the paper and should be referred to in the text before it

appears. The table will be labelled directly above. Instead of a description, after the label will be a title that clearly indicates what is being shown in the table. If there needs to be a key or footnote that points out certain parts of the table, that will go directly below the table in smaller font and labelled. Information that should be placed in the footnote include abbreviation explanations, statistical significance of entries, different sources of data, or units of measure that are too long to fit in the column headings. See below for an example.

**Table 1.** IR Spectrum of Zeaxanthin



### Figures versus Tables

This is a guide to deciding whether your information should be placed in a figure or a table.

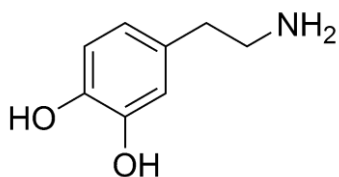
*Do I want the basic point to be communicated at a glance? Use a figure*

*Do I want the reader to see trends and relationships? Use a figure*

*Do I want the reader to see exact numbers? Use a table*

*Do I want to communicate a lot of information with words? Use a table*

**Chemical Structures** A chemical structure is the picture representation of the bonding of atoms in the molecule. If choosing to include one, it should appear directly after the paragraph or text it is mentioned. Chemical structures are formatted and labelled the same as figures, as they are considered figures. The label and description go beneath the structure. If the chemical structure was not hand drawn or created in the document yourself, then it will need to be cited. The superscript goes at the end of the description. See below for an example.



**Figure 2.** The chemical structure of dopamine<sup>2</sup>

**Chemical Equations** You may choose to insert a chemical equation/formula to better illustrate the equation being used in the study. The equation is introduced directly before it. Do not place a colon at the end of the introduction sentence before the formula if the equation actually completes the sentence or is part of the sentence. The equation must be placed directly after the introduction of it, meaning that it may be placed in the middle of a sentence. See below for an example.

The capillary pressure  $P$  depends significantly on the wetting contact angle according to

$$P = 2\gamma \cos(O/r)$$

where  $\gamma$  is the surface tension,  $O$  is the wetting contact angle, and  $r$  is the radius of the

capillary.

**Commented [WC2]:** Since the equation is part of the sentence there is no colon before it is presented.

**Commented [WC3]:** The equation should be placed centered in your paper.

**Commented [WC4]:** Since this is still part of the sentence, the word after the equation is not capitalized.

## Sections

Your professor will clarify what sections need to be included, so make sure to check those specific requirements. However, these are the most commonly used sections in ACS papers:

### *Title Page or Header*

### *Introduction*

Your opening paragraphs will outline the nature of the problem needing solved. It should also show how it is of interest and provide background information.

Finally, it should clarify the objectives/goal of the current study.

### *Experimental*

This section is a detailed procedure of what was done in the study. Describe the techniques and instruments along with any special precautions. It should be written in past tense and should be detailed enough so that someone could re-create exactly what you had done.

### *Results*

This section highlights all the specific findings of the study by talking about or showing actual data. This is where charts, tables, equations, and figures are commonly used.

### *Discussion*

This is the section that explains what the data talked about in the results section mean. It also talks about if the results were as expected and if there were any surprising findings.

### *Conclusion*

This is where you would talk about anything that went wrong in the study, anything that should be changed in future studies, and why the results were not as expected. If everything did go perfectly, what steps did you take to ensure that it went so well? It could also talk about new research questions that arose from this study.

### *References*

### **In-Text Citations**

There are different ways to cite an ACS paper, but the following will explain how to cite using superscripts, as that is most commonly used here at Pitt State.

You will need to cite any information that is not general knowledge, that came from another source, that is paraphrased from another source, or that is quoted from another source. You will also need to cite any non-original figures and tables.

You will cite using superscript numbers that are placed at the end of the sentence outside the punctuation. The superscript number corresponds with a specific reference. That means that if you were to cite one reference multiple times, that reference's superscript number will be the same, no matter where it is cited again in the text.

The sources are assigned a number based on the order they appear in the text. That means the first source will be given a 1 superscript, the second (different) source will be given a 2 superscript, and so on.

This is an example of how to cite your first source.<sup>1</sup> This is an example of how to cite your second source.<sup>2</sup> I am using the first source again, so it is cited like this.<sup>1</sup>

If you have a sentence that has information from more than once source, include the superscript numbers that correspond to all the sources by separating the numbers with a comma with no space between. For example, this sentence is referring to the first and second source.<sup>1,2</sup>

### **Numeral Word Usage**

**Numbers** Use numbers when talking about ratios, dates, or units of time or measure (10 minutes, 20 inches). Put a space between the number and the unit except when using %, \$, degree, angular minutes, and angular seconds.

**Cardinal Numbers** Spell out the number when referring to items other than units of time or measure when the number is less than 10. If the amount is greater than 10, no matter what is being referred to, use the number. For example, “three flasks” and “20 flasks.”

**Exception** No matter the amount or what is being referred to, if the sentence starts with the number and measure you will spell out both the number and the unit of measure. For example: “Twelve species were evaluated in this study.” “Twenty slides of blood sample were prepared.” “Fifteen millimeters of supernate was added to the reaction vessel.”

### **Statistic Abbreviations**

CV	coefficient of variation	SD	standard deviation
df	degrees of freedom	SE	standard error
<i>f</i>	frequency	M	Molarity
<i>r</i>	correlation coefficient	<i>M</i>	molar mass

## Reference Formatting

The references are numbered and placed according to the order they appear in the paper, not alphabetically. The number given to the reference corresponds with the in-text superscript number for the citation of the source.

All sources will need to have a hanging indent. This is the opposite of a first line indent, where there is 0.5 inches indented for everything past the first line of a reference.

### Books in Print

- #. Author Last Name, First Initial; Author Last Name, First Initial. *Title: Subtitle*,  
Edition Number; Series Information (if any); Publisher: Place of  
Publication, Year; Volume (if a multivolume work), pp page numbers.
1. Morris, R. *The Last Sorcerers: The Path from Alchemy to the Periodic Table*;  
Joseph Henry Press: Washington, DC, 2003; pp 145-158.

### Chapter in a Book

- #. Author 1; Author 2. Chapter Title. In *Book Title*, Edition Number if any; Series  
Information if any; Publisher: Place of Publication, Year; Volume  
Number, pp.
2. Puls, J.; Saake, B. Industrially Isolated Hemicelluloses. In *Hemicelluloses:  
Science and Technology*; Gatenholm, P., Tenkanen, M., Eds.; ACS  
Symposium Series 864; American Chemical Society: Washington, DC,  
2004; pp 24-37.



### Online Books

- #. Author 1; Author 2. *Book Title* [Online]; Series Information if any; Publisher: Place of Publication, Year; Volume Number if any, pp. URL (accessed Month Day, Year).
2. Tour, M. *Molecular Electronics* [Online]; World Scientific: River Edge, NJ, 2003; pp 177-180.  
[https://legacy.netlibrary.com/ebook\\_info.asp?product\\_id=91422&piclist=19799,20141,20153](https://legacy.netlibrary.com/ebook_info.asp?product_id=91422&piclist=19799,20141,20153) (accessed Nov 7, 2004).

### Journal Periodicals

- #. Author 1; Author 2. Title of Article. *Journal Abbreviation* **Year**, *Volume*, pp.
3. Caruso, R. A.; Susha, A.; Caruso, F. Multilayered Titania, Silica, and Laponite Nanoparticle Coatings on Polystyrene Colloidal Templates and Resulting Inorganic Hollow Spheres. *Chem. Matter.* **2001**, *13*, 400-409.

**Commented [WC5]:** Journal names must be abbreviated in your reference. They should be abbreviated according to the Chemical Abstracts Service Source Index.

### Online Only Periodicals

- #. Author 1; Author 2. Title of Article. *Journal Abbreviation* [Online] **Year**, *Volume*, pp. URL (accessed Month Day, Year).
4. Fine, L. Einstein Revisited. *J. Chem. Educ.* [Online] **2005**, *82*, 1601  
<https://jchemed.chem.wisc.edu/Journal/Issues/2005/Nov/abs1601.html>  
 (accessed Oct 15, 2005).

### Website Page

- #. Author 1; Author 2. Title of Site. URL (accessed Month Day, Year).
5. Chemical Abstracts Service. STN on the Web. <https://stnweb.cas.org> (accessed Nov 7, 2004).

## References

1. Hoppert, M. *Microscopic Techniques in Biotechnology*; Wiley-VCH: Weinheim, 2003; pp 145-158.
2. Ford, L; Degregori, J. Cell Cycle Regulatory Cascades. In *Cell Cycle and Growth Control: Biomolecular Regulation and Cancer*, 2<sup>nd</sup> ed.; Stein G. S., Pardee A. B., Eds.; Wiley-Liss: Hoboken, NJ, 2004; pp 42-67.
3. Northern Illinois University. Department of Chemistry and Biochemistry Homepage, <https://www.chembio.niu.edu> (accessed Nov 13, 2010).
4. Bird, P. *Chemistry 206 Laboratory Manual*; Concordia University, 2010.
5. Neef, J. Presented at Pittsburg State University, Pittsburg, KS, March 28, 2022.
6. Dunham, W. Methane Spotted on the Distant Planet. <https://www.abc.net.au/science/articles/2008/03/20/3195187.htm?site=science> (accessed April 24, 2008).
7. Berthod, A.; Ruiz-Angel, M.J.; Carda-Broch, S. Ionic Liquids in Separation Techniques. *J. Chromatogr., A* **2008**, *1184*, pp. 6-18.

**Commented [WC6]:** This is an example of a chapter in an edited book. It gives the edition number and who it was edited by.

**Commented [WC7]:** The author of this website is an organization. This is also an example of when you are citing a homepage. You can clarify that it is the homepage after the title of the site.

**Commented [WC8]:** This is an example of how to cite a lab manual. It is cited similar to a book, where the author is your professor and it is published by the university. The year is the year you are enrolled in the course.

**Commented [WC9]:** If you are wanting to cite information that your teacher has merely spoken out loud in class, this is an easy way to do that. It is cited as a presentation. The date would be the day it was talked about in class.

**Commented [WC10]:** If you must separate the URL to take out any large gaps, make sure to separate it after a slash or anywhere that it would make sense

**Commented [WC11]:** Each author is separated by a semi-colon and the last author ends with a period before the title.