

## Chem 2 – Formal Laboratory Report Guidelines Overview (Guideline is Specific to Writing a Synopsis of 3-5 pages.)

**\*\*\*IMPORTANT:** EACH STUDENT MUST PRODUCE THEIR OWN ORIGINAL REPORT. DO NOT COPY TEXT, TABLES, GRAPHS, ETC. FROM LAB PARTNER(S) NOR FROM ANY OTHER STUDENTS CURRENTLY OR PREVIOUSLY IN CHEM 2. \*\*\*

### Format

Paper – 8 ½ by 11 white, print to one side, staple top left

Font – Times New Roman 12 point font

Spacing – Double Spaced

Paragraphs – Indent ½ inch, do not put blank line between paragraphs

Margins – 1 ¼ inch margins (Microsoft Office Word default.)

Page Numbers – Top Right Along with Last name

1. Go to Insert - Page Number- Choose Top Right
2. Go to View – Header / Footer – Type Name to the left of the page Number

### Outline (for specifics see “Sections” on the next page)

Title Page

Introduction

Experimental Methods (Procedure)

Results and Discussion

Conclusions

References

Appendices

### Editing

**Spell-check / Grammar check** – In Word under Tools there is a tab for “Spelling and Grammar...”

1. Always run a spell-check/grammar check before submitting a paper; however, do not rely on spell-check/grammar check to catch all errors. Sometimes it is easier to have a friend or your lab partner read over the paper to catch any mistakes.
2. Parts of the paper may be written in the passive voice. Grammar check will try and convince you that this is incorrect. Do not believe grammar check. Leave the passages in the passive voice.

**Autocorrect** – In Word under Tools there is a tab for “Autocorrect Options”. Turning off the following options often makes it easier to type a chemistry report.

1. Correct TWo INitial CAPitals – that way it won’t alter HCl to Hcl
2. Capitalize first letters of sentences
3. Capitalize first letters of table cells
4. Correct accidental usage of cAPSLOCK

**Autoformat** – Also under Autocorrect Options. These may or may not affect your typing.

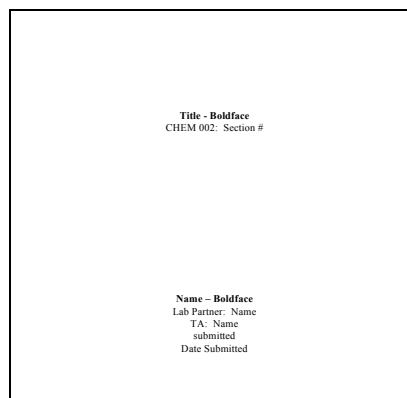
1. Automatic bulleted lists
2. List styles
3. Other paragraph forms

## Sections

### Title Page

Information should be centered left to right. Title of the report should give a brief description of the work. Your title page will look similar to the format on the right.

**Title - Boldface**  
 CHEM 002: Section #  
*13 spaces*  
**Name – Boldface**  
 Lab Partner: Name  
 TA: Name  
 submitted  
 Date Submitted



### Introduction:

This is where you explain why someone would want to do this experiment. *Why is this cutting edge work? What do the authors hope to learn? What is the purpose of this work?* You must reference whatever information you use. If you actually cite the information, then you must note this in the text. *See References.*

### Experimental Methods:

This is where you describe the hypothesis and the procedure that was followed. *What previous works were used as models? What variables were altered / controlled? How was the data collected? What methods were used to ensure that the data was valid?*

### Results and Discussion:

This is where you need to include information about the figures and the textual results. The discussion needs to include any descriptions of physical properties; any discrepancies in the data; any anomalies noted in the graphs; and, any errors that could be avoided the next time the experiment is performed.

### Conclusion

This is where you explain how well the experiment went. *Did the authors test what they intended to test? Do you feel their conclusions were valid based on the evidence they presented?* Explain why you think the experimental data was acceptable or not. Finally discuss any suggestions you have for future experimenters. These conclusions need to be supported by the data/information provided in the article.

### References

If you actually cite the information, then you must note this in the text with quotation marks around the cited material. If you paraphrase information, you must cite it as well unless it is considered common knowledge. Common knowledge is generally considered information that can be found in 5 or more sites. Sometimes it is easier to cite the paraphrase than it is to confirm that it is common knowledge and list the 5+ sites where you found the information. **Parenthetical notation** may be used. List the author's last name and page number. The last name then will correspond to a listing in the references section. For example:

“Prior to Guttenberg's invention of moveable type, Medieval mankind was forced to rely on a collective societal memory as a resource. The elderly were respected and revered for they had lived through significant events and their recounts of these events were relied upon as facts.” (Burke 93)

### Works Cited

Burke, James. The Day The Universe Changed. Boston: Little, Brown, 1995.

References can be listed as “Works Cited” and/or “Works Consulted”. For this paper the MLA format for references is preferred. *Please see next page for proper format for how to cite various types of works.*

**Synopsis of the following articles:**

Michael L. Anstey, Stephen M. Rogers, Swidbert R. Ott, Malcolm Burrows, & Stephen J. Simpson. "Serotonin Mediates Behavioral Gregarization Underlying Swarm Formation in Desert Locusts." 2009. *Science* 323: 627-630.

Stevenson, P. A. "The Key to Pandora's Box." 2009 *Science* 323: 594-595.

**Questions you MIGHT consider addressing:**

Who is doing this study? What is their hypothesis? What is their experimental method? What is their conclusion? What previous research is this study based on?

What is the difference between grasshoppers and locusts?

What type of locusts specifically is being studied? Are these the only type that causes mass devastation? What would need to be done to study this on a world-wide scale?

What is a "plague of locusts"? How often does it occur? Do the plagues occur regularly? What demographics does it affect?

Why is the Desert Locust so difficult to control?

What methods have been used to try and control the locust populations? Would using serotonin blockers be an effective method of controlling them? Why? Why not?

What are the major pesticides used for control of Locust devastation by the US EPA? How does locust devastation affect the agriculture products yield in most state in US?

Are there any non-chemical methods of controlling locust populations?

What is the difference between solitary and gregarious locusts? How do they change physically? How do their interactions with other locusts change? Why do locusts change their behavior? How long does it take for the switch and what are the physical changes that take place during this transformation? Is this type of behavior exhibited by any other species?

How many locusts are there in a given area? What is their reproductive rate?

How far and how fast can locusts migrate?

How much can a locust eat in one day? What crops do the locusts feed on? Do they ever attack animals? (Do people eat locusts?)

Are there any potential effects to live stock or humans after locust devastation? Any diseases?

What is the annual cost of prevention of locust plagues? What is the annual cost of devastation?

Why is it important to study the mechanism of locust crowding in swamps?

What would be the ecological ramifications of killing off huge populations of locusts?

How did the researchers design the experiments to prove that the increase of serotonin is the key for the behavioral gregarization of desert locusts?

Describe the two different sensory pathways for behavioral gregarization: thoracic and cephalic? What is the thoracic ganglia? What factors are linked to an increase in the amount of Serotonin in the thoracic ganglia?

How many kinds of stimuli did the researchers introduce that caused the increase of serotonin? What were they? What types of blockers were used on the serotonin receptors and were they effective at inhibiting the serotonin and the level of gregarization?

What is high performance liquid chromatography (HPLC) and how was it used to determine the amounts of serotonin?

How was the level of gregarization determined?

Based on this study, is there any method that can be developed to prevent the process of swarm formation?

If the experimenters have successful results in the lab, does this necessarily translate to success in the field? What other factors would need to be taken into account?

Have the scientists ruled out the possibility of other causes for the gregarious behavior? For example, maybe each locust emits some scent, which may contain some stimuli chemicals. Perhaps the amount of scent increases when the locust is exposed to crowded situation, the concentration of the stimuli then is much more concentrated than in the solitary state. *Does serotonin have a scent associated with it?*

What is the reaction mechanism of the serotonin? In other words, how does the crowding behavior cause the increase of serotonin? Does this mechanism apply to other animals, even human beings?

Any other question that you had when you read the article is a worthy question to be addressed. The purpose of this assignment is to make you think about a given topic and then communicate your thoughts. Some of the questions that are listed above are not answered in the articles (e.g., What is a locust plague?). These are simply questions that we had when we read the article and thought that you might have similar questions.

