Writing Lab Reports
Pre-Lab

- Best way to comprehend a lab is to prepare before
- Review
  - Procedure
  - Equipment
  - Concepts
- Asking yourself why?
Formal, Informal...??

- A formal lab is
  - always typed
  - has information included in all sections
- An informal lab is
  - typed or handwritten
  - is normally just results and discussion
- Always ask your professor
Typical Sections

- Abstract
- Introduction
- Materials and Methods (Procedure)
- Results
- Discussion
- Conclusion
- Questions
Abstract

- Short and Sweet
- Brief summary of your results and the technique used
- What an abstract is not
  - A step by step of your procedure
  - Every single piece of data you collected along the way
Introduction

- State the objective of the experiment
- Explain the background concept
- Introduce any equations and balanced equations you might use
Materials and Methods

- Write what you did not how you did it
- Include enough detail so your audience can replicate your results
- No need to write how to do a standard procedure
  - Calibrations
- Be sure to record model # of any equipment
- Your turn!
Results

- Just your data, nothing else
  - No judgments or calculations
- Tables and graphs fall here, be sure to label each one
What’s wrong with this table?

<table>
<thead>
<tr>
<th></th>
<th>Trial 1</th>
<th>Trial 2</th>
<th>Trial 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beaker 1</td>
<td>10</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Beaker 2</td>
<td>20</td>
<td>22</td>
<td>25</td>
</tr>
<tr>
<td>Beaker 3</td>
<td>25</td>
<td>36</td>
<td>30</td>
</tr>
<tr>
<td>Beaker 4</td>
<td>42</td>
<td>48</td>
<td>10</td>
</tr>
</tbody>
</table>
Discussion

- Analyze results, make conclusions
- Do calculations to make other determinations
  - Sample calculations
- Ways to improve the experiment
Johnny measured the speed of 5 cars. Going down a highway where the speed limit was 65. The cars were going 55, 80, 72, 63, and 75 mph.
Conclusion

- Short and Sweet…again
- Relevant to the experiment and based on results gathered in the experiment
- Revisit objectives and make sure they’re answered
Questions

- Most difficult part of any lab report.
- Tips for trying to make connection
  - Look at the equations in book, relate to equations in lab
  - Use the tables in the book, may be similar to lab
  - Look at what kind of reaction is being done
  - Google!
1. Shorter Is Usually Better

- If it is assumed that the chemicals will react…
- If the chemicals react…
- When the two sides are found to be in agreement…
- When the two sides agree…
- If there are a sufficient number of interactions…
- If there are enough interactions…
What can you cut from this sentence?

Indeed, it could be said that personal advancement in life lies in the ability to say the right kind of words, in the right way, at the right point in time.
2. Place your subject and verb as close together as possible.

How can you improve this sentence?

The heron, egret, and stork colonies in Everglades National Park that once contained tens of thousands of birds whose beauty helped inspire the founding of the National Association of Audubon Societies (later the National Audubon Society) have shrunk by 95 percent since the 1930s.
3. Use But Do Not Abuse Passive Voice:

The reason for using passive voice is to emphasize the object and downplay the agent. Scientists often use this when referring to processes in the lab because what was done is more important than who did it. Otherwise, use active voice for clarity and concision.
Avoid passive voice when the agent needs to be referenced in the sentence:

**Weak:** In this project, three psychological experiments were performed by the authors so that the technical problems that were occurring with the sound field could be clarified.

**Improved:** In this project, the authors performed three psychological experiments to clarify the technical problems that were occurring with the sound field.
Avoid using passive voice when addressing sources (specific research) or referencing general scientific knowledge.

Weak: Heart disease is considered the leading cause of death in the United States.

Improved: Research points to heart disease as the leading cause of death in the United States. **Or:** Researchers have concluded that heart disease is the leading cause of death in the United States.
4. Avoid Nominalizations

Weak: We conducted an investigation of the site.

Improved: We investigated the site.

Weak: Additional *consideration* should be given by Microsoft to the possible *contribution* of off-site sources.

Improved: Microsoft should also *consider* how off-site sources may *contribute*.
5. Beware of idiomatic expressions

- Break new ground
- A different ball game
- Get on board
- In the pipeline
- Right off the bat
- See the light at the end of the tunnel
Critique

- Look at the lab report. Find one way it could improve.
Thanks for Coming!

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Contact us for more information! achieve@towson.edu

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