

GUIDE FOR WRITING THE 201 ENZYME PAPER

Your paper must include all of the following sections: title, purpose, material and methods, results, and discussion. Each section must have the appropriate headings followed by the text (see example 1 below). All figures and tables are attached to the end of the report, not placed in the results or discussion section. Lab reports need to be written in scientific format using scientific language (see your TA if you are not sure what this means).

Example 1

PURPOSE

The purpose of this experiment was to

The **TITLE** clearly and concisely states what the paper is about. This will be very similar to your purpose statement. Use the space below to jot down keywords that should be included in the title. After you have written your title, read it again. Does your title accurately reflect what your experiment was about?

The **PURPOSE** section gives the reader a clear idea of the experimental objectives and briefly describes the methods that were used. Use the space below to write out the objective for today's experiment. What questions is the experiment trying to answer?

The **MATERIALS AND METHODS** section tells the reader how you went about conducting the experiment. This section is important because all experimental findings need to be reproducible. If your materials and methods section is accurate and detailed, other researchers can reproduce your results or apply your methods to a new research question. For the papers in this lab, you need only cite the Biology 201 lab manual, Fall Quarter 1999, as your experimental protocol. However, if you have made any changes to the protocol, such as different temperatures or pH ranges, **you must report this in the material and methods section!** Always use past tense. In the space below, note any changes made to the protocol for today's experiment.

The **RESULTS** section emphasizes the important patterns and trends found in your data. Do not confuse the Results section with the Discussion section (see Discussion section below to clarify the differences between these two sections). Figures and tables are good ways to present your data if they are constructed neatly and clearly labeled (see Figures and Table section below). However, your results section **must include sentences which point out the reader the most important trends in your results.** Use past tense and refer to figures and tables. Do not just repeat in sentences what is in your figure or table. It is a very good idea to construct a data sheet before starting the experiment, i.e. before lab. This helps organize your thinking and keeps your data in order.

All **FIGURES AND TABLES** must be labeled (Figure 1 or Table 1) and include a caption. Labels and captions for figures go below the figure. Labels and captions for tables go above the table. The caption explains in a fair amount of detail (stated concisely), what the figure or table is showing. **Do not put the following as a caption:** Figure 1. Rate vs. pH. If your figure is a graph showing the effects of pH on the reaction rate, then your caption should include the following: name of the enzyme, the different pH's used, what was tested, as well as any other important information that would clarify the figure to the reader.

Take time to look over your results carefully. Do your results make sense considering what you know about the experiment. If not, seek help from your TA! Use the area below to write out some of the data you have collected in class, as well as any trends you might notice.

The **DISCUSSION** section is where you tell the reader what you think your experimental findings mean. For example, if your results show that enzyme activity increases with increasing pH, here is where you explain why this occurred. What happens to an enzyme as pH increases? How does that affect enzyme activity? Use your lecture notes, lab notes, lab notebook, and textbook as sources of information. Support your conclusions with evidence - refer to your data and cite your tables and figures where necessary. Present the most plausible explanation or interpretations for your results. If there were problems with the experiment such as pipetting mistakes or an error reading the spectrophotometer, then you can mention this in the discussion, but **you need to explain how these mistakes affected the results**. Use the space below to write down ideas about your experimental findings.