*Lecture Three:* ***Biology Lab Report***

1. ***What is a lab report?***

 A lab report is how you explain what you did in your experiment, what you learned, and what the results meant. In other words, lab reports are written to describe and analyze an experiment that explores a specific concept.

 These reports and all scientific writing are generally written in the past. The information is objective and written in a way that is short and concise.

1. ***Biology Lab Report Format:***

 A good lab report for biology has a specific structure:

1. ***Title:***

 A **title** is important to any lab report and it must be clear and specific i.e. it should be to the point, descriptive, accurate, and concise. It should consist of well-chosen words indicating the subject of the report. For example do not simply state “*cell division*” if you were studying *the effect of vitamin B12 on the rate of cell division of human skin cells grown in culture*.

* Also, avoid “cute” titles – keep the title professional.
1. ***Abstract:***

 An **abstract** is a concise summary of your experiment. It should include information about the purpose of the experiment, the problem being addressed, the methods used for solving the problem, overall results from the experiment, and the conclusion drawn from your experiment. The abstract typically comes at the beginning of the lab report, after the tile, but it should not be composed until your written report is completed. Here is a short example:

This particular experiment has been carried out in order to define the factors have a positive effect on the rates of enzyme reactions in cellular activities due to the fact that certain enzymes appear to be more effective than others. The catecholase activity of enzymes has been measured through its rate of absorption in a spectrophotometer, with the use of light that has a 540 nm wavelength. In the course of the experiment, we compared samples with a different concentration of enzymes. The comparison was based on their absorbance rates. The experiment has shown that those samples that had a higher concentration of enzymes, respectively showed the higher percent of absorption rate – the difference is significant, 95% against 24%. This proves that a higher production rate is ensured by a higher concentration of enzymes.

1. ***Introduction:***

 In biology lab reports, the **introduction** is like a framework for the whole text and it shows that you fully understood the topic and the purpose of the experiment. In this part, it is helpful to jot down facts and references and you can use lecture notes. The introduction should not be too long and it has to contain the specified terminology related to the subject.

 Generally speaking, the introduction of a lab report states the purpose of the experiment. It provides background information needed to understand the experiment. The hypothesis should be included in the introduction, as well as a brief statement about how you intend to test your hypothesis. An example is provided below.

It is a proven fact that enzymes are catalytic proteins whose function is to accelerate reactions by means of lowering activation energy (Campbell, 1996). In the experiment, we studied the rate of reaction between oxygen and catechol and their ability to form benzoquinone in a condition where the concentration of enzymes (catecholase) was different. We supposed that the concentration of enzymes directly influences reaction rates.

1. ***Materials and Methods:***

 The **materials and methods** section thoroughly describes how you carried out your experiment and should provide the reader with sufficient information to replicate the experiment. In this part, the methods of how data was analyzed should also be explained. The explanation - of the study that was conducted - should all be in past tense and written in paragraph form instead of lists.

Example:

Preparing an extract of catecholase, we used a washed, skinned, and diced potato and we used a scale in order to get precisely 30 grams of potato. We also poured 150 ml of water into a beaker. We added water to the potato, removed the cover of a kitchen blender, and added both ingredients to a blender; we then put the cover back on and pressed the start button, noting the time. Then we pushed the button again to stop the blender. We used four layers of cheesecloth to filter the result and then we stored the obtained extract in a clean, closed container.

1. **Results:**

The **results** include all data found, observations made, figures, tables, and graphs. In addition to tables and figures, the results section should have a brief paragraph in which you give the results in written form. Do not explain them in this section, just report them. The written description should simply summarize the results illustrated in graphs and figures, but should not include explanations or opinions. For example do not use the phrase “these results were significant” unless you have done statistical analysis to prove they are statistically different.