Biology 1200 – Plant Growth Lab

Objectives: In this lab you will investigate some extraordinary variables affecting seed germination and plant growth. Plants have an immense variety of strategies to live in environments such as dry deserts, extremely wet flooded forests, alpine, and marshes, to name a few. Plants change strategies in response to the environment – avoiding predators (herbivory), and accessing potentially scarce sunlight, water and minerals.

Steps:

1) Attend labs 20.1 to 20.3, which include making observations about germinating seeds, and plants affected by different hormone regulators.
2) Answer the questions following each lab.
3) Choose a topic from the Additional Investigations part of each lab
4) Design you own experiment. Be sure to read Exercise 20.4 – Designing Your Independent Investigation.
5) Discuss your experiment with the instructor and ask the lab demonstrator for the equipment your particular experiment will require.
6) Remember to keep it simple! Ask an interesting question, form your hypothesis, and make sure it is testable.
7) Keep track of ALL your materials and methods as you go along. Take lots of notes, even if they seem unimportant – they will help you analyze your data later.
8) Collect and analyze your results over the following week, as many times as your particular experiment requires.
9) Write your report as a scientific paper. Start writing your paper with the materials and methods and results section. Then you will be more aware of what needs to go in the abstract, introduction and discussion. Read chapter 8 of Pechenik's Guide to Writing about Biology. Alternatively, you can read Appendix A of the lab manual. Both are excellent resources for scientific paper writing.
10) Be sure to use at least three additional resources (other than the textbook and lab manual). Two of those three must be print sources (books or journal articles). Plant science or botany books make excellent resources
11) In Biology 1100, you presented your work as an oral report. In this course, you will present your work as a poster. At every scientific conference, such as the Evolutionary Ecology Conference, some people prefer to present their work as a poster instead of a presentation. There are poster sessions, whereby people can walk around and look at the posters at their leisure, and the presenter stands by the poster and asks questions Read Chapter 11 in Pechenik's Guide to Writing About Biology – Writing a Poster Presentation

Name_____

Biology 1200 Plant Lab Write-up (/25)

Title page (1)

- Descriptive title
- Name, course#, date, instructor name

Abstract (3) (1/2 page max)

- What you did, why you did it, a brief synopsis of results, and its application to our understanding of botany/agriculture.

Introduction (4) (11/2 to 2 pages)

- Purpose
- Background. Explain relevant background such as plant anatomy, reproduction, fertilization, germination, seed anatomy, and other relevant background to your experiment.
- Hypotheses

Materials and Methods (3)

Results (4)

- Tables or graphs
- Numbered and given a descriptive caption
- Written summary of the trend or pattern in tables or graphs

Discussion (4)

- Were your hypotheses supported? Why or why not? Support your conclusions with current knowledge from research about plants. Some speculation is good.
- Include experimental limitations, eg. Sample size, time.
- Include sources of error (experimental or procedural (not human error))
- Include significance of results
- Broaden discussion to universal significance (eg. what are the implications in agriculture)
- Suggest further experiments.

References (2)

General (4)

- Text paraphrased and works cited
- Topic sentences and transition sentences used
- Correct spelling and grammar

Poster (10)

- Includes all required information
- Flow of information is easy to follow
- Each figure or table is self-sufficient
- The format is neat, easy to read, and edited for spelling and grammar.