

Notes for the preparation of your semester project report

Reports are due on Thursday, March 5th, 2009.

One report is required per group and the final grade earned by the group will be the grade awarded to each individual group member.

The work that you have performed this semester has been done in groups. Therefore, each member of the group must contribute to the writing of the final report.

Reports must be printed in a readable font (**12 point** or larger), **double-spaced**, one-sided, 5 pages maximum (not including figures, tables, and references), and stapled. **Clarity and brevity** is most appreciated.

Electronic submission is not acceptable, i.e., don't email it.

Reports must be written in clear language and full sentences. Pay very close attention to nomenclature.

Reports must include at least two figures and one table, as follows:

Figure 1. A schematic describing the experimental procedure. This can be either a flow chart or graphic image depicting the flow of events that generated your data. This figure is intended to allow the reader to understand how your experiment was conducted.

Figure 2. A graph explaining the time dependent response of the bacteria to the successive antibiotic treatments. For an example see your handout "Evolution in the lab: Biocide resistance in *E. coli*".

Table 1. Present your data in tabular format, similar to how we have presented it in class. The format for this table is flexible and you can come up with an appropriate table design that is clear and informative.

All figures and tables must include a complete title, legend and well-labeled axes (for graphs).

You are required to refer to the data in the tables and figures in your text. However, figures and tables should stand alone with their respective legends.

Reports must include **three** references to journal articles in either the introduction or results and discussion. References should follow the format of a scientific journal such as *Genetics* (<http://www.genetics.org>).

Reports should include the following sections:

Introduction: "This is the problem or question that was investigated, this is why, and this is what was found."

This section should orient the reader to the work that will be presented, giving enough background information to establish the reasoning behind the work.

Methods: "These are the methods that were used to get the results."

This section should **clearly and concisely** provide enough information about how you did the work so that, in theory, anyone could repeat your experiment.

Results and discussion: "These are the data and this is what it means in the context of the study's original goals."

This section should, without repeating the methods section, describe your findings and present your data. This section also tells the reader what the results mean, i.e., how **you** interpret them. If there were any extenuating circumstances, special difficulties or experimental limitations that affect the interpretation of your results, this is the place to mention them (i.e., contamination, methodological errors that led to unusual observations, etc.).

Questions to address in the results and discussion (just a start, I will expect more than this):

What trends in the development of antibiotic resistance did you observe? What mechanisms might have facilitated these trends?

Did all of the compounds display antimicrobial activity? Why or why not?

What controls were used in the experiment and why were they important?

What methodological precautions were taken to ensure that the threat of contamination of your media was minimized?

How does the “antibiotic disc diffusion” method work?

What do the results of your experiments explain about the principles of evolution we have discussed this semester?

In what type of situation do you think the results of your experiment might be of public health importance?