**BIOPHYS 3G03 / LIFESCI 3BP3 - Modelling Life**

**Group Project**

Your group will design a model to look at any area of biology and life sciences that you are interested in and write a program for this model. By the end of term, your group will submit a report on this in the form of a short scientific paper. The report will have

* Abstract summarizing your aims and results
* Introduction giving the biological background and the aims of your study. What was already known about this problem? Is there a new question you are asking? Why are you interested in this?
* A method section describing how the model is defined, with sufficient detail so that someone else could write an equivalent program. Make sure you give a clear explanation of what all the parameters are and what they do. If you have started with a program written by someone else, make this clear, and say how you updated the program.
* A results section with graphs or tables of the output of your program. It is usually good to discuss each figure or table as you go along in the results section, so that the reader understands what they are supposed to see in each figure.
* Conclusions describing what your results mean overall, and explaining how the results give information on the biological questions you posed in your introduction.
* A reference list of papers on biological background and/or experimental measurements and/or previous modelling studies of similar problems. Cite these papers properly in the report, in the way they are cited in scientific papers.
* The length is not critical. Just say what you need to say in order to be clear. I am guessing that the final document will be 10-20 pages including the figures and references.
* Also submit a copy of the netlogo code for your program so that I can run it

**What am I looking for in the report?**

VERY IMPORTANT

* Is the model clearly defined? Have you explained how it works unambiguously? Could I rewrite an equivalent program from your explanation?
* Is there an interesting problem addressed by your model? Neither too simple (boring) nor too complicated (impossible to interpret because there are too many parameters)
* Does the program really do what you say it does? I will run your Netlogo program to check that it works, and I will read the code to see how you wrote it, and see if I can spot any bugs or mistakes.

SLIGHTLY LESS IMPORTANT

* Do you make a link to biological papers? Have there been experimental studies that measure things similar to what your program predicts. This may be qualitative phenomena - e.g. we observe certain types of animals cooperating in packs, we observe that larger packs are more successful in hunting (is this true?), bees preferentially visit flowers that produce more nectar. It might also be quantitative data too if these things have been measured - e.g. lions live in prides with an average of 7 animals and they catch zebra once every 4 days. Bees spend an average time of 85 seconds on one flower, but only 35 seconds when there is no nectar. It is often quite hard to make a model match quantitative data, so this is not essential in your report.
* Presentation – Clear writing style. Clear graphs that are properly labelled. Consistent use of references where appropriate.