

# Project Structure, Deadlines and Grades

## Deadlines and Grades

**Tuesday, November 27.** Project proposal (3-5 pages, including one page on the statement of the problem, an initial model, parameter estimation plan and some simulation figures) **due by noon**, 30% OF THE GRADE. An 30 minutes oral presentation in my office on Wednesday, Nov. 28. *Please schedule a time for this*, 15% OF THE GRADE.

**Tuesday, December 11.** Project is due by noon in my office (PSA 429) (12-18 single space pages with font size 12), 55% OF THE GRADE.

## Structure

The following suggestions are simply guidelines.

**Statement of the problem.** I would like to see a clear and well stated problem or a group of problems. To this end, I will appreciate your effort in describing the biological background and your comment as why the problem is interesting and timely. I think 2-3 pages will be needed to make a convincing pitch of the problem.

**Model formulation and justification.** Be very careful and accurate in stating your biological and mathematical assumptions and present your justifications. I will also appreciate your comments on alternative ways to model the same problem. This shall also take 2-3 pages.

**Parameter estimation and simulation.** I will appreciate your best effort in estimating the ranges of your parameters through your experiment data (when available), or from literature. Please document such estimations in details. I will encourage you to perform a systematic and well planned simulation and present your computational findings. Some bifurcation diagrams can be very useful. This will need 3-4 pages.

**Mathematical analysis.** You shall attempt to perform some standard preliminary mathematical analysis on your model. This may include positivity and boundedness of solutions, existence and local stability of nonnegative steady states. I think you will need 3-4 pages on this.

**Implications, limitations and future directions.** Use your imagination and even speculation. I enjoy reading those. I will also value (highly) your critical comments of your own work. This self-critics shall enable you to present a good set of directions for future work.