You will write a journal style article, giving you an opportunity to hone your scientific writing skills. Your results will also be discussed at one of the stages described below in a short presentation to the class. Your main reference will be a published paper chosen from the course website. Here, I give you some guidelines on how to organize your paper and prepare your presentation. Deadlines for each stage of the project are provided too.

Choose Paper (By 10AM Friday January 24). Email me the paper you would like to examine and the top three dates (out of Feb. 7, Feb. 28, Mar. 28, Apr. 18, and Apr. 25) you would like to present. Note, for each date you will only have to present the work done on the project so far.

1. Topic Proposal (Due 10AM Friday February 7). By now, you should have read the paper in its entirety. Your proposal should be one or two paragraphs providing (a) a brief synopsis of the main results of the paper, and (b) the particular results (e.g. two of the figures) you will recapitulate and extend for your project. This should be in your own words, and you should describe the analytical and numerical methods you intend to employ.

2. One page synopsis (Due 10AM Friday February 28). By now, you should have some preliminary results. Your synopsis should provide a roadmap for the remainder of the work on your project. Briefly describe the model and what you have done on it so far. Then, give an outline of your remaining questions and how you plan to answer them.

3. First draft of the paper (Due 10AM Friday March 28). Your paper should be taking shape, even though you may still be completing some of the analysis, programming, and simulations. In keeping with a typical scientific journal format, your paper should consist of the following:

   • Abstract: Tell the reader in a few sentences about the problem you consider and your main conclusions. In the first draft, the abstract should be very short.

   • Introduction: Motivate your problem and results in this portion of the paper. You should provide a focused explanation of the context of the question, why the question is interesting; and previous work around the question to this point.

   • Methods: Describe the actual model equations you use and what each of the terms mean. In addition, you should provide the technical details of the calculations you did for the project. This includes pencil and paper mathematics as well as computational methods. In your first draft, include as many details as you can. It is best to do this and trim later.

   • Results: This is the main section of the paper. Here you should discuss what you actually found out about the model. This is where most of the figures of the paper will be described as well. Once again, be as detailed as possible in the first draft.

   • Discussion: Put your results into biological context. First revisit the main conclusions of your work. Then discuss how what you did adds and compares to what others have done. Also, discuss the limitations and possible extensions of your work.

The first draft should have the general structure of the finished product. However, all parts may not be fleshed out at this point.
4. **Second draft of the paper (Due 10AM Friday April 18).** The paper should be nearly complete. Think of this as a manuscript you send out for review.

5. **Final draft of the paper (Due 10AM Friday April 25).** This should be a polished and publication ready version of your article. You should have incorporated helpful suggestions made by the review process.

- **Presentations (in class at Stage 1, 2, 3, 4, or 5).** You will have 5-10 minutes for your presentation. Since this is a short amount of time, you should practice so you convey your information. Do this by having a very focused presentation that discusses why your questions are important, how you answered (or plan to answer) them, and what the answers tell you. Do not talk too fast!